U.S. Department
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**Pipeline and Hazardous
Materials Safety
Administration**

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In July 2021 the Government Accountability Office (GAO) released its Pipeline Safety Information on Keystone Accidents and DOT Oversight report to Congress. In addition to the review of the Keystone pipeline operations, the report's lessons learned summary also included the Pipeline and Hazardous Materials Safety Administration's (PHMSA) plan to evaluate its Pipeline Safety Program's special permit process.

To achieve this goal, PHMSA pursued third party resources to assess the overall effectiveness of its pipeline special permit program. In April 2022, the Department of Energy's Oak Ridge National Laboratories (ORNL) was selected to conduct the assessment. ORNL evaluated various components of the special permit program, including: (1) the application review process, (2) whether special permit conditions have effectively promoted pipeline safety, and (3) the extent to which PHMSA investigates operators' compliance with special permit conditions.

Based on PHMSA accident records, the special permit process has not resulted in a reduction in safety of special permit segments. While incidents occurred on two special permit pipelines, they were not connected to the relief provided in the special permit. Additionally, through this assessment, PHMSA sought to evaluate whether certain special permits should have a sunset provision.

ORNL initiated the technical review and assessment in August 2022. As part of the assessment, PHMSA requested ORNL to:

1. Provide findings targeting areas of improvement in the special permit process;
2. Propose tools to support compliance and effective oversight of special permit conditions;
3. Quantify the need, if any, for additional resources to create a more effective special permit program including the oversight program to ensure conditions are properly implemented; and
4. Propose regulatory changes to reduce the need for future special permit requests.

Each of the above focus areas have been addressed in ORNL's August 2023 Final Report. PHMSA appreciates ORNL's findings and suggested improvements and has implemented measures to incorporate changes into its Special Permits Program. These measures include furthering the discussion of the 2020 notice of proposed rulemaking for class location which may reduce the number of special permit requests. PHMSA will also begin utilizing its Work Management System to document and track potential permit requests until they have been resolved and to provide notifications and digital submissions of documents. Furthermore, PHMSA will finalize its standard operating procedures for special permits processing and has

also expanded its special permits team to provide more staffing flexibility and opportunities for collaboration.

While some of these activities were implemented before the report's completion, some of the items will continue to be executed throughout the remainder of the year.

A full description of the report's findings and suggested improvements and PHMSA's actions to address each is included in the attached.

Attachment

PHMSA
Special Permit Process Review

OAK RIDGE National Laboratory

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ORNL/SPR-2022/2682

Buildings and Transportation Science Division

SPECIAL PERMIT PROCESS REVIEW FOR THE PIPELINES AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

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CONTENTS

Figures vi
Abbreviations vii
Acknowledgments viii
Executive Summary ix
Preface xiii
Special Permits Defined xiii
Objective xiii
Introduction 1
Special Permits and OPS Class Location Designations 2
Process and Criteria for Issuing and Denying Special Permits 4
Special Permit Process 4
Special Permits for Class Changes 5
Other Special Permits 7
Review of Special Permit Requests 9
Trends for Special Permit Requests 9
Regulations Involved in Special Permit Requests 12
Special Permit Processing Time 13
Review of Enforcement Actions and Accidents 16
Inconsistency of Inspection Records 16
Accidents on Special Permit Pipelines 17
Analysis of Conditions for Special Permits 19
Example Special Permit Conditions for Class Location Change 19
Comparing Issued Class Change Permits with the Example Permit 21
Other Special Permit Conditions 22
Appendix A. Statement of Work A-1
Appendix B. List of Special Permits Reviewed B-1
Appendix C. Enforcement Actions for Special Permits by Region C-1
Appendix D. Code Sections often Involved in Special Permit Requests D-1

FIGURES

Figure 1. OPS class location designations. 3
Figure 2. Number of special permit requests issued and denied since 2004 categorized by reason for the request. Inset data labels indicate the numbers of permits issued and requests denied. 10
Figure 3. OPS processing times for special permits requests between 2001 and 2022. Inset data labels indicate the numbers of permits issued and denied.....13

ABBREVIATIONS

CFR	Code of Federal Regulations
LNG	liquefied natural gas
MAOP	maximum allowable operating pressure
OPS	Office of Pipeline Safety
ORNL	Oak Ridge National Laboratory
PHMSA	Pipelines and Hazardous Materials Safety Administration
RSPA	Research and Special Programs Administration
SMYS	specified minimum yield strength

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EXECUTIVE SUMMARY

The Office of Pipeline Safety's (OPS's) special permits program began more than 20 years ago to prescribe alternative actions to maintain a consistent level of safety when specific provisions of safety regulations are unnecessary or inappropriate for a certain pipeline facility. Initially, requests were typically submitted in response to unusual circumstances. The following findings and recommendations are based on a technical review of 131 special permit requests and permit conditions from 2001 to 2022, enforcement actions, and interviews with stakeholders.

Findings

Based on data from the OPS website, 131 special permit requests have been submitted since 2001. Of these requests, 103 were issued and 28 were denied. During this period, 16 of the issued permits have expired or been withdrawn or revoked. Gas transmission pipelines accounted for 86%, hazardous liquid pipelines for 13%, and liquefied natural gas facilities and gas distribution systems for the remainder. OPS made decisions for about half of the requests within 1 year of the date of application. Most decisions were made within 3 years.

In most cases, special permit requests are not submitted because compliance is impossible or highly impractical. In most cases, OPS regulations can be met but may not be the least expensive or most convenient compliance pathway for an operator. Even in these cases, issuing a special permit does have public benefit associated with less construction, fewer service interruptions, and potentially greater safety through use of integrity management processes. There were also special permit requests for situations in which compliance was not possible or where a novel design direction made the pipeline/facility safer than could strict adherence to existing regulations.

Class location changes account for 45% of special permit requests since 2001. The number of requests involving class location changes has grown significantly since 2004, accounting for most special permit requests over the past 5 years. Class location changes, or class changes, occur when the area around a pipeline segment is developed, increasing nearby population and risk.

An informal process to exchange information about potential special permit requests has been used before the formal requests are submitted. The existence of this informal exchange may be beneficial in that it allows OPS to help operators understand the data and threshold requirements for obtaining special permits. However, it causes inconsistencies that make assessing the true processing time

challenging and may contribute to other tracking and data handling issues. Records that are not placed on the OPS website or federal dockets are not generally available for review, including for this study.

The enforcement history for special permit pipeline segments is generally positive. Approximately 1% of OPS's enforcement cases from 2001 to 2021 involved special permit segments. The enforcement actions during this period included 11 warning letters, 4 notices of amendment, and 20 notices of probable violation. In some cases, civil penalties were imposed totaling just over $1.08 million.

Based on OPS accident records, the special permit process has not resulted in a reduction in safety of special permit segments. Review of OPS records found accidents on two special permit pipelines, the Keystone and Rockies Express pipelines. Both pipelines are operated under special permits for alternative maximum allowable operating pressure, but the accidents were not connected to the use of alternative maximum allowable operating pressure on either pipeline. The Keystone pipeline ruptures involved manufacturing and construction defects; the Rockies Express pipeline ruptures involved construction deficiencies. Special permit pipelines do not appear significantly more likely to rupture than other pipelines based on OPS accident data since 2010.

Special permit conditions have evolved since 2001. Conditions in early special permits did not instruct operators about topics such as thresholds for damages requiring repair, how quickly repairs had to be completed, and what issues needed to be reported to OPS. A trend toward special permits with greater specificity and more conditions targeting a range of potential threats began in 2008 and continued through 2022. More recent special permits have also included conditions intending to generate experience and including language for potential future regulatory actions. Conditions imposed by modern permits are comprehensive and at times go beyond the scope of the waived regulation. Some class change special permit conditions directly pertain to the code section waived, but in general, special permit conditions appear designed as broad efforts to reduce risk by retaining the margin of safety of the pipeline against a comprehensive range of potential threats.

No formal procedure, training, or expanded data system exists within OPS's special permits program until recently. OPS recently completed a draft standard operating procedure for the special permit process. The lack of an approved and implemented standard operating procedure has led to inconsistent communication of roles, responsibilities, authorities, and accountabilities among OPS divisions that handle special permits. Similarly, there is no special permit training for inspectors, and software tools have not been developed to appropriately record compliance with special permit conditions.

Regional operations divisions do not use consistent procedures to oversee compliance with special permit conditions. Inspection records for special permits are inconsistent, leading to questions about whether compliance for special permit segments is as positive as the record of enforcements suggests.

OPS allows operators to informally withdraw special permit requests. Operators have withdrawn special permit requests at two different stages of the special permit process. The first is after the informal exchange of information. In those cases, there is not a federal docket assignment, and so the volume of special permit requests that OPS receives and processes cannot be accurately assessed. Similarly, informally withdrawn requests are not posted on the OPS special permits website, eliminating a source of information for potential applicants and the public. The second stage is after the formal review process but before OPS leadership's final review of the special permit request. In these cases, the permit has been docketed and can be included in the statistical information.

Suggestions for Improvement

1. Consider rescinding the 2004 guidance opening the special permit process to class location changes to reduce the number of special permit requests. Special permit requests have become more common for operators when their pipelines experience a class change. Returning class change compliance to published federal regulations will improve consistency, reduce the number of special permits requested, and free OPS resources to address unusual situations through the special permit process.

2. Regulations include guidance for operators to follow when class location changes occur, but an additional class change compliance option (through new rulemaking) could be finalized. OPS issued a notice of proposed rulemaking in October 2020 to amend the requirements for gas transmission pipeline segments that experience a change in class location. The proposal includes alternative requirements (integrity management methods) similar to those included as conditions in special permits issued from 2004 to 2022 as an option for pipeline operators when a class location change occurs. OPS's approach using a mixture of prescriptive and performance-based safety measures should be continued.

3. Consider a sunset provision for most special permits. Returning pipelines to compliance with up-to-date regulatory language will likely improve consistency in inspections, compliance, and safety. Some special permits (such as those for unique design constraints or situations where compliance is impossible) should not be required to sunset.

4. Consider taking steps to ensure data accessibility and trackability during the informal information exchange that occurs before submission of a formal special permit request. Informally exchanging information may benefit operators but can also create data retention, transparency, and trackability issues. OPS should consider additional efforts to make data trackable and accessible, such as including these items in work management system records.

5. Consider developing and expanding tools to support the special permit process. OPS could develop a suitable tool for exchanging electronic documents and notifications with operators during the special permit process. Such a tool may have many of the same benefits as the informal information exchange process. Inspection Assistant should be expanded to readily generate compliance records specific to special permit conditions. The work management system already has provisions for including special permit activities; use of this functionality could be expanded to improve trackability during special permit processing. OPS should also update regulatory guidance through new rulemaking to require digital submission of special permit requests and related materials.

6. Consider using a more collaborative team for special permit processing. There is only one point of contact within OPS for special permit processing. An approach involving more collaboration among OPS staff can aid in succession planning and broaden institutional knowledge and confidence in the special permit process. This approach may also decrease response times by improving staffing flexibility to adjust to absences and workloads. Increasing collaboration often increases workload and may require adding personnel.

7. Consider deploying the recent standard operating procedure for processing special permit requests. The procedure should describe the roles, responsibilities, authorities, and accountabilities for all OPS staff involved in developing, approving, inspecting, and ensuring compliance for special permits. The procedure should enhance collaboration among OPS's divisions and address shortcomings in inspector training, consistency of inspection methods, and records generation for special permit inspections.

PREFACE

Special Permits Defined

The mission of the Pipeline and Hazardous Materials Safety Administration's (PHMSA's) Office of Pipeline Safety (OPS) is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials essential to daily life. OPS promulgated comprehensive regulations found in 49 CFR Parts 190, 191, 192, 193, 195,198, and 199 to achieve its mission and advance pipeline safety. These regulations govern the design, construction, operation, and maintenance of hazardous liquid and gas pipelines throughout the United States. OPS may grant special permits to waive compliance with one or more of the federal pipeline safety regulations on a case-by-case basis. Operator-specific special permits impose conditions in exchange for waiving specific regulatory requirements outlined in CFR. Imposed conditions are safety measures that provide alternative means of mitigating threats to pipeline integrity.

When OPS receives a special permit application, it performs a review and a series of technical analyses. If OPS grants a special permit, the operator must adhere to safety requirements that are typically more rigorous than regulatory requirements. All special permit applications, both issued and denied, are made available to the public for review.

The authorization of special permits is specified in 49 CFR 190.341.

Objective

The objective of this assessment is to evaluate various components of the special permit program, including the application review process, whether special permit conditions have effectively promoted pipeline safety, and the extent to which OPS investigates operators' compliance with special permit conditions. Using OPS's review metrics, the US Department of Energy's Oak Ridge National Laboratory (ORNL) analyzed all 131 OPS special permits (issued, withdrawn, and denied), special permit conditions, enforcement actions, and accident and incident data from 2001 to 2022 using publicly available data. This analysis included the technical review of the special permit conditions and how these conditions have evolved since 2001 and compares special permit conditions with regulatory requirements as they pertain to

the safety of people and the environment. Appendix A shows the statement of work for this study.

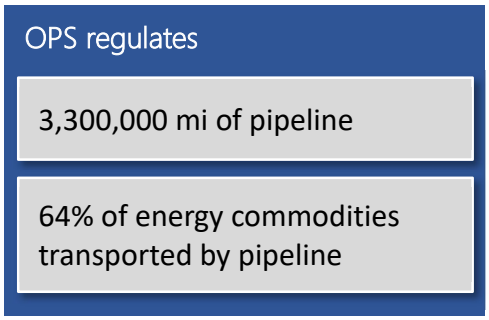
ORNL also interviewed stakeholders in the special permit process. ORNL interviewed OPS leadership first and then staff from multiple divisions within OPS, the National Transportation Safety Board, the Pipeline Safety Trust, state regulators, industry representatives, and staff of the PHMSA Chief Counsel's Office. These interviews informed the review by providing valuable insight and impressions of the special permit process.

Along with findings, this review also proposes suggestions for improvement to help create a path forward. All findings and suggestions for improvement are included in the executive summary and throughout the report.

INTRODUCTION

Pipelines remain the standard means of safely and efficiently moving large amounts of hazardous gases and liquids over long distances. However, changes that challenge current safety regulations are inevitable. These changes can result from urban development, natural processes that affect material or land (such as corrosion or earthquakes), shifts in industry standards, and advancements in material design and technology. Therefore, the Pipeline and Hazardous Materials Safety Administration's (PHMSA's) Office of Pipeline Safety (OPS) adopted 49 CFR Part 190, which allows OPS to issue special permits to pipeline operators in unique circumstances[1] in which regulatory requirements in CFR are not appropriate or achievable operational safeguards.

Initially, OPS's special permits program appeared limited to unique circumstances. However, a new trend has emerged since 2004, when OPS began receiving special permit requests for class location changes (i.e., class changes). The applications for and issuance of special permits for pipelines in response to a what can be considered a more ordinary situation—urban development in areas with pipelines—have become more commonplace.



This program review also found that OPS has not implemented a well-defined procedure and/or process for handling special permit requests. Only very recently was a draft procedure developed for handling these requests. Therefore, the following circumstances exist:

- Guidance does not exist that clearly defines OPS staff roles and responsibilities regarding special permits.
- OPS is not using its work management system (WMS) to track and process special permit applications.
- Operators have expressed a desire for permits to be approved or rejected within 6 to 9 months of submission.

[1] 49 CFR 190.341 requires operators to include in their application for a special permit "an explanation of the unique circumstances that the applicant believes make the applicability of that regulation or standard (or portion thereof) unnecessary or inappropriate for its facility."

- OPS inspection records are inconsistent because considerations for special permits are absent from the current inspection software (i.e., Inspection Assistant).
- No specific special permit training exists for inspectors and supervisors.

This report describes these findings and recommendations for each. This report also offers a review of special permits, enforcement actions, criteria for issuing or denying special permits, and analysis of special permit conditions.

Special Permits and OPS Class Location Designations

OPS assigns pipelines class locations to establish regulatory requirements for their design, construction, operation, and maintenance based on the level of risk to lives and property in the event of a pipeline rupture. OPS designations describe the specific classes. Operators regularly assess pipeline segments for class changes based on development of the area surrounding the pipeline right-of-way. As mentioned, the regulations require additional safety measures be implemented for when a pipeline changes to a higher-class designation.

When operators identify a pipeline segment where a class change has occurred, they are required to reestablish the maximum allowable operating pressure (MAOP) (see 49 CFR 192.611). If regulations for the higher-class location do not permit the existing MAOP, operators have three options: lower the MAOP (which decreases gas supply) to meet the requirements of the new class location, replace pipe segments to maintain the current MAOP, or apply for a special permit to maintain current operating pressure without replacing the pipeline segment.

The four classes that OPS designates (shown in Figure 1) apply to locations based on proximity to populated areas, such as public spaces or residential areas. More specifically, the classes are defined by the number of buildings with human occupancy within 220 yd. of a pipeline. Class 1 also includes offshore locations. Class 3 also includes areas where a pipeline resides within 100 yd. of a building or public space occupied by 20 or more people 5 days a week for 10 weeks in a 12-month period.

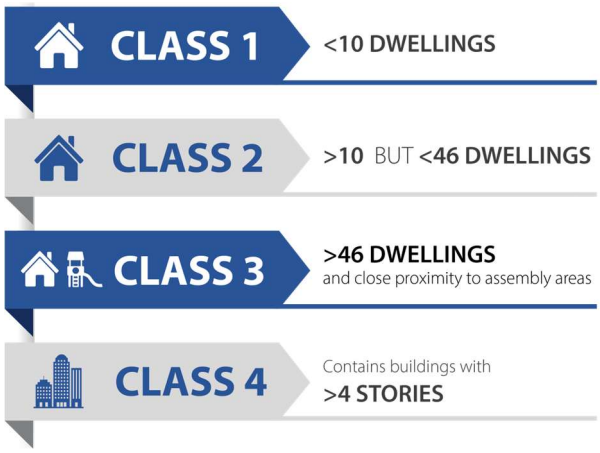


Figure 1. OPS class location designations.

PROCESS AND CRITERIA FOR ISSUING AND DENYING SPECIAL PERMITS

Special Permit Process

OPS has not used a well-documented procedure for handling special permit requests, although it has recently developed a draft operating procedure for this purpose.[2] The following description of the current process is based on interviews with numerous stakeholders, including OPS staff and operators who have used the special permit process. The process begins with operators contacting the OPS Research & Engineering Division's contact for special permits. In some instances, the OPS contact and the operator exchange information informally to aid the operator in assembling the information needed for a formal special permit request. If the operator proceeds to a formal special permit request, the OPS contact coordinates development of the special permit documentation within OPS and is the primary liaison with the operator for further information requests and status updates. PHMSA Chief Counsel's Office staff aid with developing an environmental assessment and with establishing a federal docket to document formal requests. OPS publishes formal requests for special permits through the Federal Register to open a comment period to the public and manages resolution of any comments posted to the docket. There is limited interaction with OPS regional operating divisions during development of the special permit. Once OPS leadership decides to issue or deny the special permit, this information is again published through the Federal Register, and a letter of determination and the special permit (including conditions to be imposed) is sent to the operator. The special permit, Federal Register notices, special permit analysis and findings, and final environmental assessment are posted to the federal docket. At this point, the Research & Engineering Division hands off responsibility for inspection and enforcement of the special permit to the relevant regional operating division.

No records are available to enable a quantitative assessment of the workload associated with processing special permit requests. The OPS work management

[2] A draft procedure in development in 2022 was originally provided to ORNL upon request. Additionally, a previous draft procedure developed in 2016 was provided to ORNL during the writing of this report.

system (WMS) can document the level of effort exerted by OPS staff in processing special permits, but this capability has not been used up to this point.

Special Permits for Class Changes

From 2001 to 2004, the Research and Special Programs Administration (RSPA) oversaw the special permit process, or *waiver process* as it was known at the time. Special permit approvals and grants were announced through a notice in the Federal Register. There is little information in the notices to suggest that a consistent set of metrics was applied to evaluate applications' merits. During this period, the Risk Management Demonstration Program was conducted with selected pipeline operators. This program began deploying what are now known as *integrity management protocols* in an exploratory manner. Several of the permits issued during this period were issued to operators who were working closely with RSPA through the program. These operators typically proposed activities to reduce the risk of failure in situations where a waiver of the regulatory requirements was requested. RSPA evaluated these activities and decided whether to issue a permit.

In 2004, OPS promulgated a rule that introduced the "Criteria for Considering Class Location Waiver Requests" (Federal Register Vol. 69, No. 124, June 29, 2004). This document remains posted on the OPS website as a resource for operators seeking special permits. It lays out several threshold requirements, summarized as follows:

- No pipe segments changing to Class 4 locations will be considered.
- No bare pipe will be considered.
- No pipe containing wrinkle bends will be considered.
- No pipe segments operating above 72% specified minimum yield strength (SMYS) will be considered for a Class 3 waiver.
- Records must be produced that show a hydrostatic test to at least 1.25 × MAOP.
- In-line inspection must have been performed with no significant anomalies identified that indicate systemic problems.
- Up to 25 mi of pipe on either side of the waiver location must be included in the pipeline company's integrity management program and periodically inspected with an in-line inspection technique.

In addition to these threshold requirements, the rule established a criteria matrix with guidance on evaluating pipeline segment considerations for issuance of a special permit. Categories of pipeline considerations include pipe manufacture, pipe material, weld procedures, test pressure, local geology, leaks and failures, and inspection findings. Each consideration is rated as "probable acceptance," "possible

acceptance," or "requires substantial justification." The matrix provides guidance on rating each consideration. For example, test failures would be rated as probable acceptance if a pipeline has no history of pressure test failures. If the pipeline has had some pressure test failures, but it can be documented that they are not indicative of a systemic problem in the pipeline system, then test failures would be rated as possible acceptance. Finally, if pressure test failures have occurred that are indicative of a systemic problem in the pipeline system, then test failures would be rated as requires substantial justification. The criteria document also lists notification requirements, information operators should provide in support of a special permit, and reporting requirements that will be enforced upon the issuance of a permit. For class change special permit requests, at least some threshold criteria and criteria matrix determinations were consistently reported in the associated special permit analyses and findings documents.

The phrase *threshold requirements* implies these requirements must be met before a special permit can be considered. In most cases, operators met the threshold requirements before submitting a permit request. In some instances, the operator was allowed to meet one or more threshold requirements through compliance with conditions imposed by the special permit. For example, in PHMSA-2006-0008, the operator had not conducted hydrostatic tests to at least 1.25 × MAOP in all special permit segments prior to submitting a special permit request. The operator was allowed to meet the hydrostatic test requirement through condition 16 of the issued permit, which specifies that the operator must conduct hydrostatic pressure tests at a minimum pressure of 1.25 × MAOP within 1.5 to 2 years for Type A special permit segments and within 3 years for Type B special permit segments. Similarly, the special permit allowed the operator's compliance with condition 8 to satisfy the threshold requirement of in-line inspection with no anomalies identified that indicate system problems. In contrast, in the case of PHMSA-2008-0156, the operator was not allowed to meet the hydrostatic test requirement through compliance with special permit conditions; instead, their noncompliance resulted in denial of the permit. This operator had met the remaining threshold conditions.

The wording of the criteria matrix ratings suggests that they should be used to assess whether a permit can be issued. Instead, it appears the ratings are used to construct the conditions for a given special permit. In particular, the lowest rating (i.e., requires substantial justification) suggests that the criteria likely fall short of safety targets, and that substantial justification should be provided for a waiver to be issued. No examples or descriptions of justifications that meet this standard are provided. However, many special permits were issued with one or more criteria

falling within the rating of requires substantial justification. Permit PHMSA-2016-0008 is again an example: the pipe manufacture and pipe material criteria were both rated as requires substantial justification.

There are also indications that the criteria matrix ratings are not applied consistently. For example, special permits PHMSA-2016-0158 and PHMSA-2016-0159 rate the pipeline coating differently, even though both pipelines used an external coal tar enamel coating. The coating was rated as possible acceptance in PHMSA-2016-0158 and as requires substantial justification in PHMSA-2016-0159. Both permits used the same footnote referencing the occurrence of stress corrosion cracking. The criteria for class change waivers place coal tar enamel in the possible acceptance category. The special permit analyses and findings documents did not include details indicating any other differences that may have led OPS to rate these two pipelines differently. Although these different ratings may be explained by details not included in the special permit analyses and findings documents, they could create an impression that the ratings were not applied consistently.

49 CFR 190.341 specifies that an operator applying for a special permit must provide an explanation of the unique circumstances that make it unnecessary or inappropriate to apply a particular regulatory requirement to the facility. The number of special permits issued from 2004 to 2022 for class changes suggests that class changes are not a unique circumstance. On the contrary, they are anticipated in existing regulations; CFR addresses actions that need to be taken in the event of a class change. In interviews, stakeholders within OPS and in outside organizations expressed concerns about the issuance of special permits for class changes.

Of the class special permit requests that were denied, five were denied because of issues including unreliable welding techniques, leaks, corrosion, and coating issues that OPS judged could not be managed effectively through integrity management actions. Three permit requests were denied because the operators did not provide complete information in their applications, and three permit requests from a single operator were denied because that operator was found to be in violation of the conditions of their existing special permit.

Other Special Permits

No guidance documents are provided for special permits that are not associated with class change. Considering many of the special permits were requested in

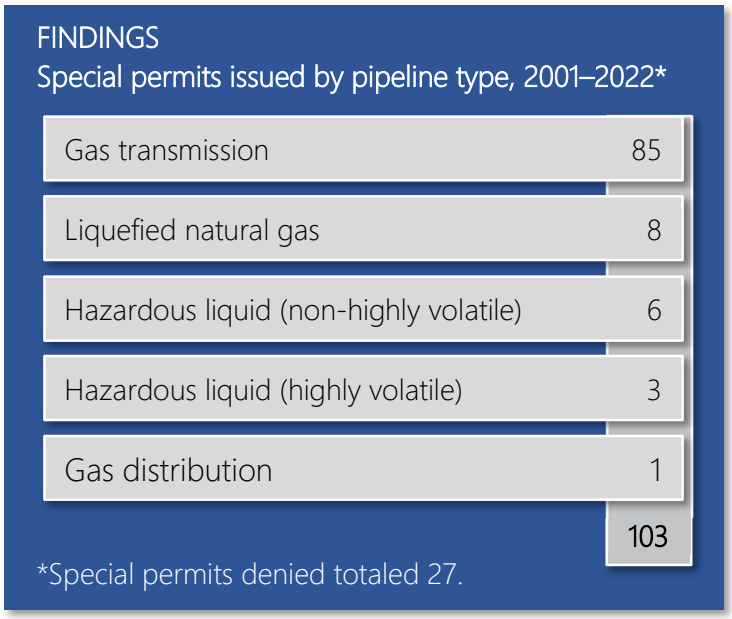
response to unique circumstances, producing a single guidance document is impractical.

Among the 72 special permit requests not associated with class changes, only 15 were denied. Of those 15, 4 were denied because the application was incomplete or the operator did not provide information needed to process the request. In some cases, this missing information was specifically requested by OPS but was never received. The remaining denied requests were deemed inconsistent with pipeline safety for reasons that, although varied, shared an underlying theme: the operator had failed to convince OPS through information provided in their application that granting the special permit would result in safe operation, particularly if the request would have affected a high-consequence area. These statistics indicate that OPS staff generally worked to issue permits when they were convinced that alternative safety methodologies could create a safe operating environment without rigid adherence to regulatory guidance in the CFR. This approach does appear to have been consistent among the non–class change permit requests.

REVIEW OF SPECIAL PERMIT REQUESTS

Trends for Special Permit Requests

From 2001 to 2022, OPS issued 103 special permits and denied 28 for a total of 131 requests. During this period, 16 permits expired or were withdrawn or revoked. The vast majority of the 131 requests for special permits were submitted by operators of gas transmission pipeline systems. Appendix B provides a list of the special permit requests studied for this review.[3]



OPS regulations do not require operators to state explicitly whether they are requesting a permit because of a situation where meeting regulations is impossible or highly impractical or whether they are doing so to reduce the cost of compliance. Therefore, there are no objective data to support an assessment in this regard. The descriptions in some permit applications can nevertheless provide insight into the operators' rationales. For example, in special permit RSPA-04-18817, the operator of a pipeline crossing a US Navy exclusion zone requested a permit to use a pipeline constructed of low–magnetic permeability steel to comply with Navy regulations. In this case, Navy and OPS regulations conflict, making compliance with both impossible. In another example, PHMSA-2005-20323, the operator would have been required to install odorization equipment for two pipe segments less than 0.5 mi long because they had experienced a class location change. One segment was located near a highway and the other in a wetland. For both pipelines, the operator described the impracticality of installing odorization equipment because of limited right-of-way to accommodate the equipment. In many other permits, exemplified by PHMSA-2007-

[3] At the time of writing, PHMSA issued an additional 3 permits for class changes in 2022 and is currently reviewing an additional 14 class change special permit requests.

27122, the operator pointed to multiple public benefits, including safety benefits to a greater number of people living along the pipeline, reduced ground disturbance and environmental effects associated with construction, and lower cost.

As shown in Figure 2, 91 of the 131 permit requests can be grouped into five categories. The remaining 40 requests are more unique and may relate to circumstances at specific locations or to particular operators. For example, pipeline operators in Alaska requested six special permits related to extreme climate and sparse population, conditions not present at pipeline locations in the contiguous United States. Requests for special permits based on class changes have accounted for 45% of special permits requested since 2001 and nearly all special permit requests in the past 5 years.

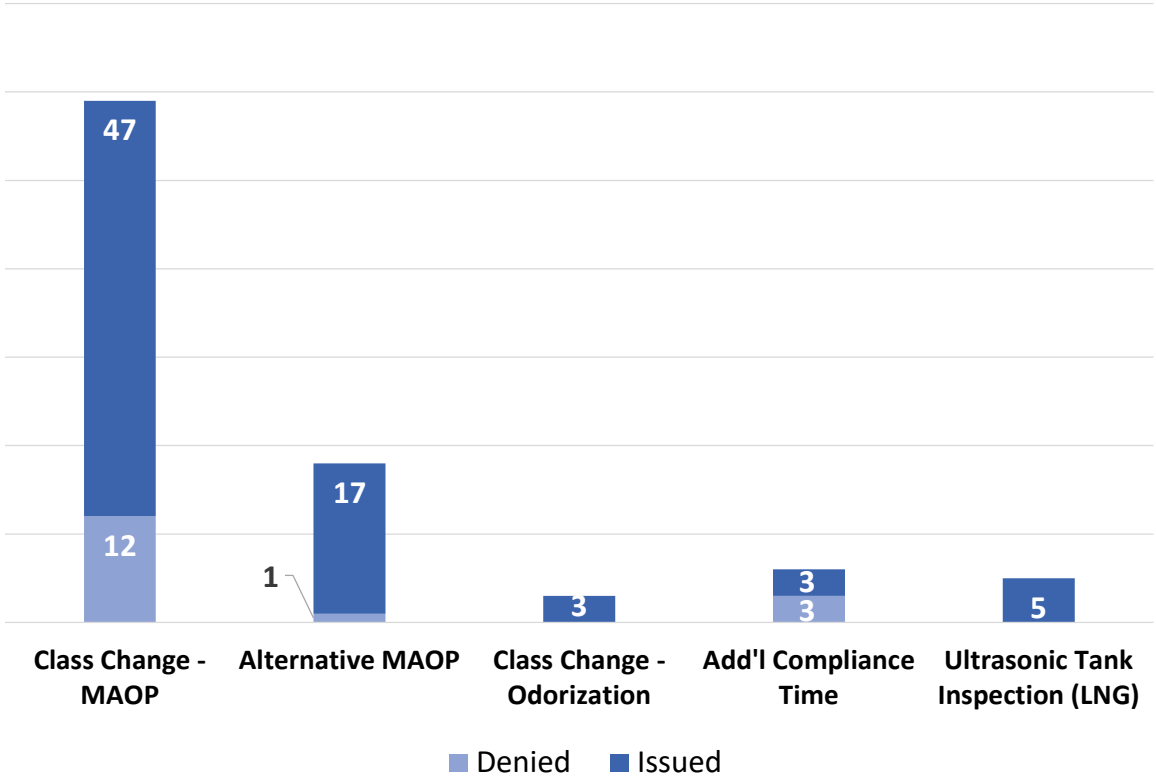


*Figure 2. **Number of special permit requests issued and denied since 2004 categorized by reason for the request.** Inset data labels indicate the numbers of permits issued and requests denied.*

Operators have also sought relief from odorization by requesting special permits for existing pipeline systems where a change in class location requires the odorization of the gas to a customer or facility that cannot accept odorized gas. Special permits granted in these situations exempt operators from odorization requirements for the affected pipeline segments only.

FINDINGS

Class changes are responsible for 45% of special permit requests since 2001.

The number of special permits issued over the study period for class changes suggests that class changes are not a unique circumstance.

Special permit requests to allow alternative MAOPs for segments of pipelines accounted for the greatest length of pipeline (approximately 8,300 mi). Most of these requests were submitted after an ASME standard was updated to allow for a higher MAOP. After issuing these special permits, OPS updated the applicable language in federal regulations to allow the same MAOP as the ASME standard.

Some operators sought additional time to comply with regulatory requirements. They requested either to complete required remediation of pipeline damage or hardware upgrades or to complete required inspections.

Shortly after the NFPA 59A standard was updated to allow ultrasonic investigation, operators of liquefied natural gas (LNG) facilities submitted five special permit requests to allow for the use of ultrasonic tank inspections in place of radiography. As it did for alternative MAOP, OPS subsequently updated its regulations to address the issue.

Pipeline Lengths

The aggregate length of pipelines covered by the special permits reviewed for this study is 11,600 mi, a small fraction (0.35%) of the approximately 3,300,000 mi of pipelines regulated by OPS. More than 50% of special permits issued for class changes are for segments less than 1 mi long, and more than 90% are for segments less than 10 mi long. Although these segments amount to a seemingly inconsequential fraction of pipeline, they are often located in highly populated areas.

Even though class changes accounted for the largest group of special permits, they only amounted to 173 mi of pipeline, or about 0.005% of the installed pipeline infrastructure in the United States. This is a seemingly inconsequential fraction of

pipeline, but these pipelines are located in highly populated areas where risk is highest and the consequences of a release or failure are larger.

Regulations Involved in Special Permit Requests

The greatest number of requests for special permits were related to requirements in 49 CFR part 192. Requests for relief from parts 192.611, 192.619, 192.625, 192.111, and 192.201 comprised 65% of the total 145 relief requests for part 192. These five parts are associated with the two most prevalent reasons for a special permit request—class changes and alternative MAOPs.

Requests involving pipeline class changes most frequently sought relief from 49 CFR parts 192.611 and 192.619. Part 192.611 pertains to confirmation or revision of the MAOP when a change in class occurs. Part 192.619 provides regulatory guidance for determining the MAOP in steel or plastic pipes. In one case, a waiver was also requested from the requirements of part 192.505, which provides strength test requirements for steel pipelines operating at 30% or more of the SMYS. Relief from part 192.625 is requested when the class change results in difficulty meeting odorization requirements.

Requests to use alternative MAOP calculations involved a waiver of part 192.111 and often part 192.201. Part 192.111 provides guidance on the design factor for steel pipe, whereas part 192.201 contains requirements for pressure-relieving and -limiting stations. Some alternative MAOP requests additionally seek relief from part 192.619.

The text of these code sections is included in Appendix D.

Special Permit Processing Time

As shown in Figure 3, the amount of time for OPS to respond to special permit requests from 2001 to 2022 ranged from 2 months to 120 months (not including response times for special permit renewals).[4] Half (50%) of the special permits were issued or denied within 12 months, and an additional 41% were issued or denied within 36 months. However, 11 permits required 48 months or longer to reach a resolution. In one of these cases, the operator could not produce required pressure test records. In some cases, the operator and OPS exchanged information several times.

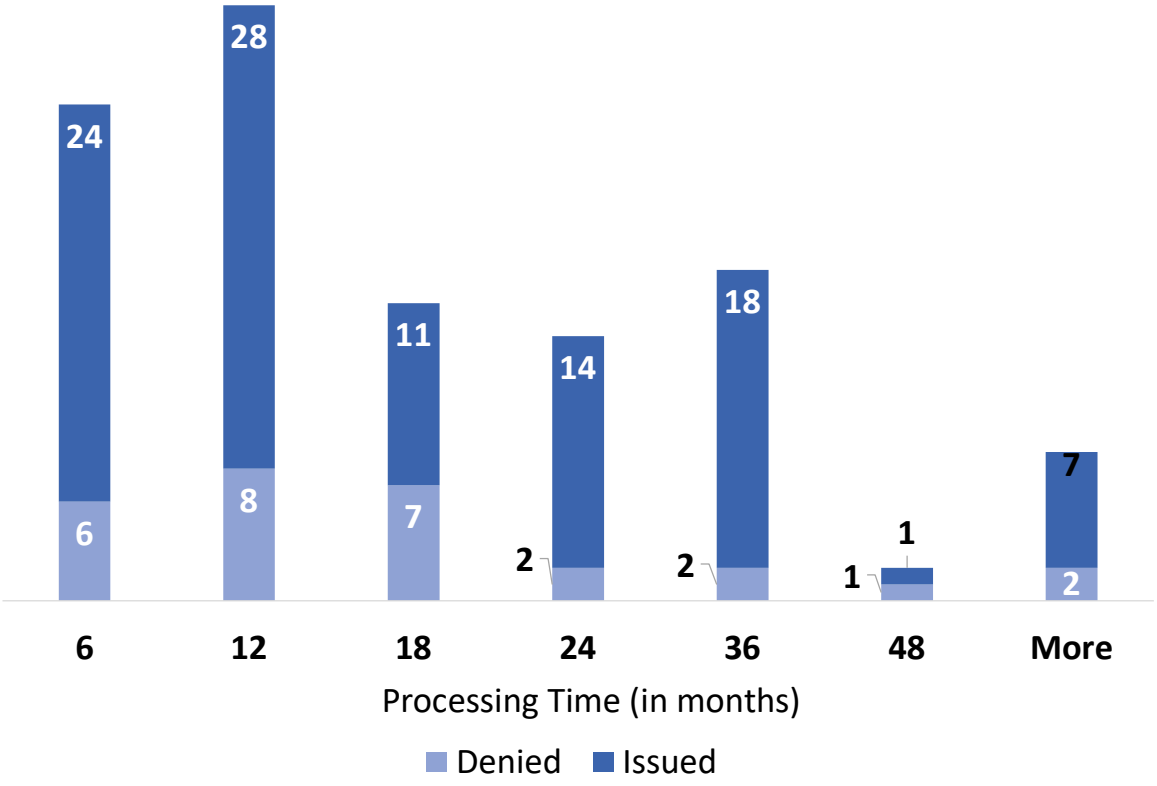


Figure 3. OPS processing times for special permits requests between 2001 and 2022. Inset data labels indicate the numbers of permits issued and denied.

[4] This assessment is based on the date of the permit request and the date of issuance as documented in the permit or in Federal Register notifications. At the time of writing, the length of time for the informal information exchange process prior to a formal request being submitted is unknown.

More than half (59%) of permit requests from operators of pipelines for carrying LNG, carrying hazardous liquid (highly volatile and non-highly volatile), and gas distribution were processed within 12 months. All but three of the remaining requests were processed within 36 months. In one of these three cases (2009-0390), the waiver application was incomplete because the applicant was unable to provide the required complete pressure test records. In the other two exceptions (2007-27120 and 2007-29033), which were filed by one operator, the special permit applications failed to include measures the operator would take as alternatives to compliance with regulations. OPS requested this information from the operator but did not receive a response and consequently denied these permit requests.

FINDINGS

An informal exchange of information about potential special permit requests has been used in advance of formal requests for special permits.

OPS has allowed operators to withdraw special permit requests rather than receive denial letters.

RECOMMENDATION

Consider taking steps to ensure data accessibility and trackability during the informal information exchange before submission of a special permit.

Nearly half (48%) of permit requests by gas transmission operators were processed within 12 months. Another 46 permits (44%) were processed within 36 months. The remaining 8 requests required more than 36 months to process. All eight involved class changes, and five were from operators with significant enforcement histories. One permit was denied in part because of a history of enforcement issues, and the others were eventually issued.

These results demonstrate that at least 90% of permit requests are processed within 36 months regardless of the operator type or waiver justification. Permit requests that require more than 36 months to process appear to be outliers. There were a few more outliers for gas transmission operators than for other operators, but when these data are compared as percentages of total requests, the results are comparable for all operator types.

The informal information exchange between operators and OPS before submission of a formal request can create tracking and transparency issues. Because tracking

data are not available for when these informal exchanges begin, the true processing time an operator experiences from the beginning of this informal process to the issuance or denial of a permit cannot be assessed. Operators are motivated to use the informal process because it may shorten the overall processing time. OPS has introduced WMS to schedule and send notifications for activities. This system could help OPS schedule and track progress when considering special permit requests. A similar tool that is accessible to operators could help them track and more rapidly respond to requests for information from OPS and could also help reduce special permit processing times. Tools such as WMS could reduce or eliminate the need for the informal process and enhance tracking and transparency in special permit consideration.

REVIEW OF ENFORCEMENT ACTIONS AND ACCIDENTS

OPS can initiate enforcement actions when it discovers that operators are in violation of the pipeline safety regulations. Special permits also carry enforceable safety requirements (i.e., conditions). OPS's enforcement authority is described in 49 CFR 190 and summarized in Appendix C.

From 2002 to 2022, OPS issued 11 warning letters, 4 notices of amendment, and 20 notices of probable violation associated with special permit pipeline segments. During the same period, 3,578 enforcement actions were taken, 35 (about 1%) of which were for special permit pipeline segments. The complete list of special permit enforcement actions by region is included in Appendix C.

FINDINGS

Until recently, no procedure existed to govern OPS's special permits program.

Regional operations divisions do not use consistent procedures to oversee compliance with special permit conditions.

The enforcement history for special permit pipeline segments is generally positive.

RECOMMENDATION

Consider deploying a standard operating procedure for processing special permit requests that describes the roles, responsibilities, authorities, and accountabilities for all OPS staff involved in developing, approving, inspecting, and ensuring compliance with special permits.

The 3,578 violations included those identified during planned OPS inspections or inspections that occurred after a pipeline failure. In both cases, conditions were discovered that may have eventually resulted failures, and the operators were directed to correct those conditions.

Inconsistency of Inspection Records

Regional operations divisions do not consistently generate inspection records for special permit segments. This inconsistency is likely a consequence of the fact that no defined process existed until recently for special permit processing and enforcement. Inspection Assistant, the system used to generate records of inspections, does not include any fields specifically designated for special permit requirements. Including special permit questions in Inspection Assistant would be

labor intensive; additional staff would likely be needed to add and maintain the question fields, which would need to be specific to individual permits because of differences in conditions based on when they were imposed and resulting from differing pipeline threats. The WMS has provisions for including information related to special permits; a procedure has been written and implemented for the WMS that addresses including special permit information.

The inconsistency in inspection records makes it difficult to determine objectively the extent to which OPS reviewed and/or inspected operator compliance with special permit conditions. A requirement was recently added to special permit condition 15 for the operator to schedule a meeting with the director of the appropriate regional operations division to review annual report submissions within a month of filing the annual report.[5] This requirement was not contained in the example permit developed by the Gas Pipeline Advisory Committee. The annual report is the operator's primary means of demonstrating compliance with special permit conditions. Requiring a meeting to review the annual report is a positive step toward ensuring compliance. The WMS could be used to schedule this meeting and to document its outcomes. OPS should consider encouraging operators with special permits that do not contain this requirement to comply with it voluntarily and should consider amending the permits to include it as they are renewed. Adding a searchable database of annual reports could also be useful to facilitate comparison from year to year and to help new inspectors become more familiar with the pipeline history when staffing changes occur. Some violations may not have been recorded because of inconsistency in inspection records; nevertheless, the relatively small number of enforcement actions on special permit pipeline segments is encouraging in terms of safety.

Accidents on Special Permit Pipelines

Two pipelines operating under special permits have experienced ruptures unrelated to the regulation waived. One is the Rockies Express pipeline, a natural gas transmission pipeline, and the second is the Keystone pipeline, a hazardous liquid pipeline that transports crude oil. Both pipelines operate under special permits for alternative MAOP.

OPS records show that three ruptures of the Rockies Express pipeline have occurred. The first occurred in 2009 shortly after the pipeline began operating. The second

[5] This requirement is included in PHMSA-2017-0163 in condition 15, item L, for example. This requirement does not appear in special permits issued before 2022.

rupture occurred in 2015 and the third in 2018. In all three cases, a girth weld failed because of induced stress associated with settling or movement of the pipeline. Thus, these ruptures resulted from improper construction techniques, not the use of alternative MAOP. All three ruptures occurred in class 1 locations that were operating at 80% SMYS as allowed by the special permit.

The Keystone pipeline has also experienced four ruptures. In 2016, a girth weld at a joint between pipe segments of differing thicknesses failed. In 2017, a pipeline segment ruptured. Subsequent tests on the failed pipe showed that a crack had developed from gouges introduced during construction, most likely by heavy tracked equipment crossing the top of the pipeline. The third rupture occurred in 2019 and was traced to a defective pipe seam weld. The fourth rupture occurred in 2022; the root cause was bending stress fatigue that cause a weld flaw to develop a crack. None of these ruptures was directly attributable to the use of alternative MAOP in the pipeline. All four ruptures occurred in locations covered by the special permit. The MAOP reported at the time of the 2016 rupture suggests that the segment was operating at 72% SMYS when it ruptured, not the 80% SMYS allowed by the special permit.

A Nuclear Regulatory Commission Expert Team examined OPS accident records since 2010.[6] They calculated a risk of rupture of 0.000024 per mile of pipeline per year for pipelines with diameters over 20 in. and operating at pressures of 300 psig or higher. Applying this rupture risk to the 11,600 mi of special permit pipeline and rounding to the nearest whole number, there should have been about six ruptures in these pipelines from 2001 to 2022. Comparing this projection with seven recorded ruptures of special permit pipelines suggests that these pipelines are not significantly more likely to rupture than pipelines without special permits.

[6] Report of the US Nuclear Regulatory Commission Expert Evaluation Team on Concerns Pertaining to Gas Transmission Lines Near the Indian Point Nuclear Power Plant, April 8, 2020. Available at https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML20100F635.

ANALYSIS OF CONDITIONS FOR SPECIAL PERMITS

Special permits impose conditions on the operator of a pipeline in exchange for waiving the regulatory requirements outlined in CFR. The imposed conditions are alternative safety measures to mitigate threats to pipeline integrity.

FINDING

Special permit conditions have evolved since 2001. Modern permits have much more specificity and more conditions that target a range of potential pipeline integrity threats.

In the context of special permits, determining what alternative measures may be required to waive a particular regulatory requirement to provide an equivalent level of safety is a subjective process. Directionally, waiving regulatory requirements increases risk. Imposing alternative safety measures as conditions of the special permit decreases risk. However, because there is no objective measure of how much risk increases or decreases with these changes, whether a special permit is as safe as regulatory guidance is a matter of professional opinion. The Nuclear Regulatory Commission adopted a Probabilistic Risk Assessment methodology in the 1970s and continued to improve it for many years (60 FR 42622, August 16, 1995). In this methodology, risk is assessed as an objective, numerical probability of reactor core damage. OPS could adopt a similar risk modeling process but doing so would entail substantial effort from OPS and pipeline operators and might not improve pipeline safety markedly, particularly given the relatively small amount of pipeline operating under special permits.

Example Special Permit Conditions for Class Location Change

OPS provides an example of a class location special permit with typical conditions on its website.[7] The example, dated September 1, 2012, is typical of class location change special permits that request waiver of the requirements of 49 CFR 192.611, which directs operators to confirm or revise MAOP when a pipeline experiences a

[7] Example Class Location Special Permit Typical Conditions – September 1, 2012, available at https://www.phmsa.dot.gov/pipeline/class-location-special-permits/example-class-location-special-permit-typical-condition

class change. Of the 27 conditions included in this example special permit, 7 conditions relate directly to the integrity and pressure rating of the pipeline at the time the request was submitted. Condition 1 specifies that the existing MAOP may not be increased. Condition 6 specifies that the operator must conduct a direct assessment of the pipeline for stress corrosion cracking. If stress corrosion cracking is present, the pipeline may be unable to sustain the existing MAOP safely. Condition 10 requires the operator to conduct an initial in-line inspection of the pipeline to identify existing damage, such as dents or areas with metal lost to corrosion, that could indicate an unsafe condition at the existing MAOP. Condition 20 specifies thresholds for repair of anomalies identified by in-line inspection. These anomalies require remediation to eliminate the potentially unsafe conditions. Condition 21 specifies that the operator must be able to provide records demonstrating that girth welds were nondestructively tested at the time of construction. These records demonstrate that the girth welds are free of defects that could result in weld failure. Similarly, condition 23 requires that operators identify any segments of pipe that may be susceptible to pipe seam issues (including weld issues) because of the pipe's age or manufacturing process. These issues could result in an unsafe condition at the existing MAOP. Finally, condition 25 requires the operator to maintain records of the hydrostatic test results used to justify the MAOP and documentation of the manufacturing of the pipe. Manufacturing details such as chemical and physical properties demonstrate that the pipe complies with American Petroleum Institute standards.

Corrosion threatens pipeline integrity by reducing the thickness of the pipe walls, reducing their capacity to contain the existing MAOP safely. Of the remaining 20 conditions in the example permit, conditions 3, 4, 5, 16, 17, 18, 19, and 22 focus on preventing corrosion of the pipeline by demonstrating and maintaining the state of repair of the pipeline coating, cathodic protection system, and associated test systems. These conditions do not directly pertain to the waived code section but instead reduce the risk of pipeline failure by requiring the pipeline margin of safety be actively monitored and maintained. Similarly, conditions 12 and 24 contain measures to reduce the likelihood of third-party damage caused by equipment striking the pipeline. These measures are also intended to maintain the existing margin of safety of the pipeline.

Conditions 2, 8, 9, 11, and 14 in the example permit detail requirements for the operator to update their plans, procedures, and operating manuals to reflect the requirements outlined in the other conditions. Conditions 7, 13, 15, 26, and 27 identify details of test results, unusual events, and so on that need to be reported to

OPS and the timing of those reports. These conditions also do not pertain directly to the waived code section but help ensure that the operator consistently implements the conditions and aid OPS in maintaining safety oversight of the pipeline.

Comparing Issued Class Change Permits with the Example Permit

Special permit RSPA-00-8453, issued in 2001, contained only four conditions. Although they were organized differently, the condition topics were comparable to provisions included in the example permit for special permit inspection areas, initial in-line inspection required by condition 10, and close-interval inspections required by condition 3. Another condition specified repair of anomalies identified during these inspections but did not contain as much detail on thresholds and repair timing as in condition 20 of the example permit.

PHMSA-2007-0039, issued in 2009, listed 27 conditions. When initially issued, this special permit was 13 pages long, and the topics of its listed conditions matched those of the OPS example permit, although some of the conditions in the issued permit were less detailed. When it was renewed in 2017, this special permit grew to 26 pages. The topics of its 27 conditions were the same as in the original permit, but the level of detail in the renewal was comparable to that of the example permit, which is 28 pages long.

PHMSA-2017-0163 was issued in 2022. It has 18 conditions, whereas the example permit has 27. The content was reorganized collaboratively with industry through the PHMSA Gas Pipeline Advisory Committee to better group related topics, decreasing the number of conditions but increasing the number of subtopics within each condition. The topics of the 18 conditions in the permit agree with a model permit document developed by the advisory committee. As was the case in the example permit, only some of the conditions directly pertain to MAOP. In addition to conditions to mitigate threats to pipeline integrity, PHMSA-2017-0163 also includes new conditions for mainline valve control. One of these provisions mandates remotely controlled valves capable of isolating a ruptured pipe segment within 30 min of the discovery of the rupture. This provision does not address MAOP or a pipeline integrity threat but instead is intended to reduce the effect of a hypothetical pipeline rupture on the surrounding community. Also included (as part of condition 13) is a new requirement to conduct gas leakage surveys at all valves, flanges, pipeline tie-ins, and other potential leak points, and to remediate leaks at least twice each calendar year. There is also a requirement to minimize gas release to the environment during pipe replacement. These requirements are intended to reduce greenhouse gas emissions to the environment. The Gas Pipeline Advisory Committee

model permit and the example permit on the OPS website are similar in length, indicating a comparable level of detail even though the organization of the material has changed. At 50 pages in length, PHMSA-2017-0163 is a much longer document, which indicates that it contains an even higher level of detail.

Other Special Permit Conditions

PHMSA-2017-0046, issued in 2019, is an example of a special permit issued for a pipeline designed to accommodate unique conditions. The operator requested a waiver of 49 CFR 192.112, which requires pipelines to use an external coating that is nonshielding to cathodic protection systems to protect against corrosion. In this case, the pipe segments were to be transported long distances into Alaska during construction. Because fusion-bonded epoxy coatings typically used for pipelines are susceptible to damage during transportation, the operator requested permission to use a three-layer polyethylene coating, which shields cathodic protection and is not allowed by 49 CFR 192.112. In this case, OPS determined that the benefit of less coating damage during transportation outweighed the risk associated with cathodic protection shielding in the remote areas of Alaska. This permit requires implementation of 10 conditions, 4 of which pertain to the quality and performance of the proposed coating. The remaining conditions pertain to MAOP, integrity management against cracking, cathodic protection, and reporting.

In PHMSA-2016-0087, issued in 2017, the city of Bangor, Maine requested a waiver from 49 CFR 195.306 for one segment of pipeline. The operator requested permission to use Jet A fuel rather than water to pressure test a pipeline used to transport Jet A fuel to the Bangor International Airport. According to 49 CFR 195.306, non-volatile liquid petroleum may be used for pressure testing provided that "the entire pipeline section under test is outside of cities and other populated areas." The pipeline involved is less than 1 mi long and runs under property primarily owned by Bangor with industrial and airport uses and with no nearby residential areas. Using Jet A as the pressure test fluid is advantageous because it avoids generating large volumes of mixed fuel and water that would need to be handled as hazardous waste. It also eliminates the possibility of residual water contaminating the Jet A fuel after the test is completed. The special permit imposes 13 conditions, all of which target rapid identification and response to any leaks discovered during the pressure test.

These two examples demonstrate that the conditions imposed for unique circumstances are designed more specifically to address the risk associated with waiving a regulatory requirement. In these cases, conditions that addressed pipeline

integrity and other related concerns were not needed or were more limited in scope than those imposed for class change special permits.

A third example, PHMSA-2005-20323, is a special permit that waives the odorization requirements of 49 CFR 192.625. Odorization of natural gas is a means of leak detection, not leak prevention. This permit imposes 9 conditions. The only condition that directly pertains to the waived regulatory language is condition 2, which requires additional ground patrolling and leakage surveys as alternative means of leak detection. The remaining conditions pertain to MAOP, close interval surveys, interference surveys, cathodic protection maintenance, and damage prevention programs. Although these additional measures can only improve pipeline safety by reducing the likelihood of a leak, they do not provide an alternative means of leak detection. A more recent example, PHMSA-2019-0174, is similar in that most of the imposed conditions are largely unrelated to the regulatory language requiring odorization for leak detection. This permit imposes 18 conditions, but only 2 pertain directly to the waived regulatory requirement: condition 8 requires right-of-way patrols that include leakage detection equipment, and condition 12 requires landowner communications.

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APPENDIX A. STATEMENT OF WORK

ORNL Technical Task Authorization (TTA)

Review of PHMSA Special Permit Program

Work under Task 3 of DOE Proposal 2117-Z295-19

TTA HQ-108

April 19, 2022

BACKGROUND

In accordance with 49 CFR § 190.341, PHMSA can waive compliance with one or more of the federal pipeline safety regulations if a special permit is requested by an operator. Upon receipt of a complete special permit application from an operator, PHMSA reviews the application including the draft environmental assessment, and will consider the safety and environmental implications of waiving the regulation(s) as requested in the special permit application. PHMSA may grant an application, in whole or in part, if it is not inconsistent with pipeline safety. PHMSA may include conditions in the special permit if they are necessary to assure safety, environmental protection, or are otherwise in the public interest. Operators must implement special permit conditions for the duration of the permit. These additional measures are determined based on the specific threats, pipeline design, operating information, compliance history and site-specific circumstances associated with each application.

Special permit conditions can be used as a platform to assess alternative integrity management practices and techniques. They are also occasionally used to develop new rulemaking for integrity threats.

FUNDING

The work performed by Oak Ridge National Laboratory (ORNL) for this TTA will be part of the existing and approved Department of Energy (DOE) Proposal 2117-Z295-19 Task 3, Pipeline Analysis for PHMSA Office of Pipeline Safety (OPS) Regional Offices. This TTA provides a description of the work to be performed.

The work described in this TTA will be funded from DOT PHMSA Interagency Agreement (IAA) Number 693JK319N000018. PHMSA funds for this IAA are in different allocations at Oak Ridge National Laboratory (ORNL) and have end dates of the period of performance of 14 September 2022 and 14 September 2024. Based on the availability of funds as of this writing and the estimated cost of this work, ORNL anticipates additional funds from PHMSA will be provided to support this work prior to commencement of work.

Task 1: Review and Analyze PHMSA Special Permit and Incident Data

Using special permit data for permits granted since January 2001, ORNL will conduct a study and perform a comparative analysis of the special permits granted, denied, and withdrawn. Work is to be based on PHMSA's guidelines, including the special permit template and the June 2004 criteria for consideration of class location waiver

requests.[8] PHMSA will provide ORNL with the relevant permit applications, violation and enforcement documentation, and any other pertinent documents that are not available from the PHMSA special permit website. ORNL will gather the following information for presentation:

- Types of special permits granted, denied, and withdrawn.
- ORNL will compare current and prior criteria and metrics used by PHMSA to grant/deny waivers since 2001, including conditions in the special permits. Based on analysis of the data collected, ORNL will address the following questions:

  - Could a future rulemaking alleviate applications to waive the requirements of certain code sections?
  - Does analysis of the data, including requests, grants/denials, operator compliance records, and PHMSA Office of Pipeline Safety (OPS) incident data reveal any trends (e.g., which types of operator(s) submit the most requests, and what is the compliance history of these operators)?
  - Are special permit requests most often the result of unique design or system conditions that make compliance with current regulations impossible or highly impractical, or are they are simply requests designed to reduce operator costs?

Deliverables: At the conclusion of this task, ORNL will provide preliminary results of the review and analysis of Special Permit and Incident Data.

Task 2: Review and Analyze Special Permit Conditions

ORNL will conduct a technical review of special permit conditions, through the following activities:

- Based on analysis of special permit historical data in Task 1, ORNL will conduct a technical engineering review of the special permit conditions and determine how and whether the conditions have evolved over time and to what extent they have promoted safety. ORNL will also review how special permit conditions address the targeted threat, either as a discrete condition or as a set of related, interdependent conditions.
- ORNL will provide a comparison of the special permit conditions versus the applicable regulatory requirements waived with respect to public safety and protection of the environment.
- ORNL will conduct interviews with the appropriate staff of the Field Operations Divisions, Accident Investigation Division, Engineering and Research Division, and the PHMSA Office of Chief Counsel. ORNL will also conduct interviews with stakeholders including the Pipeline Safety Trust, the National

[8] https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/technical-resources/pipeline/class-location-special-permits/64091/classchangewaivercriteria.pdf.

Transportation Safety Board, states, and industry. Industry interview will be selected randomly from operators who have applied for special permits in the last 10 years.

- ORNL will evaluate and compare the application processing times based on special permit request type, operator type, special permit segment(s), application completeness, operator's submittal quality, etc.
- ORNL will provide findings of recommended actions to PHMSA to improve the special permit program.

Deliverables: At the conclusion of this task, ORNL will provide the preliminary draft results of the review and analysis of Special Permit Conditions.

Task 3: Evaluate Compliance Inspections of Special Permit Conditions

As part of this task, ORNL will meet with the Field Operation staff from the five PHMSA Regions in order to determine how they conduct inspections to establish compliance with special permit conditions through the following activities:

- Determine how Field Operations conducts, tracks, and enforces the special permit conditions, including through interviews with Regional Directors.
- Identify any existing or recommended policy and inspection improvements.
- Provide case summaries for enforcement cases that include special permit violations, by region.
- Make recommendations, if appropriate, for improving compliance reviews of special permit conditions.

Deliverables: At the conclusion of this task, ORNL will provide the preliminary results of the evaluation of enforcement of special permit conditions.

Task 4: Prepare Draft Report

ORNL will develop an updated draft report based on the results of Tasks 1 to 3, including all technical editing of the preliminary draft report in advance of submission. ORNL will meet with PHMSA up to two times to discuss feedback on the preliminary draft report. The meetings may be held remotely by Microsoft Teams if required by PHMSA.

Task 5: Finalize Report

PHMSA will provide comments on the updated draft report to ORNL. ORNL will address the comments and incorporate the feedback into the final report. As required, ORNL will also develop a comment matrix summarizing the changes to the document. ORNL will prepare a final report by incorporating PHMSA's requested modifications and edits in the updated draft report.

PERIOD OF PERFORMANCE AND DELIVERABLES

The following table provides the schedule of deliverables. The kick-off of the TTA will occur at a date of convenience to PHMSA following ORNL receiving new funds for the performance of work described in the TTA.

Task	Deliverable	Due Date
1	Preliminary Draft Results - Review and Analyze PHMSA Special Permit and Incident Data	3 months after kick-off
2	Conduct a Technical Review of the Special Permit Conditions	5 months after kick-off
3	Evaluate Inspection Program of Special Permit Conditions	7 months after kick-off
4	Draft Final Report	8 months after kick-off
5	Final Report	10 months after kick-off
All	Program Management Monthly Reports on completed and in-process actions	Every 2 weeks **Monthly**
All	Program Management – Kick-off Meeting	5 days after contract award

ORNL Team Members and Organizational Experience

ORNL is the largest of DOE's multi-program, Office of Science National Laboratories, with a staff of over 5,000 professionals. The broad research portfolio at ORNL affords the opportunity to involve research staff members who are experts in their fields on an as-needed basis for any particular project. Areas of expertise include materials science, systems engineering, chemistry, combustion, decision science, and many others. Additionally, the research staff at ORNL are supported by a team of professional technical writers and editors as well as graphic artists who can support the development of high-quality reports and presentations.

Scott Sluder will be the manager of this project and will participate actively in the technical reviews. Scott earned BS and MS degrees in mechanical engineering from the University of Tennessee and has been a licensed professional engineer for more than 20 years. Dr. Mark Lower is a recognized expert on the ASME Boiler and Pressure Vessel Code and has supported PHMSA projects at ORNL for many years. Mark is also a licensed professional engineer. Alyson Coates has a background as a facility engineer in the nuclear industry and extensive experience with regulatory compliance and documentation. Alyson has also previously supported ORNL's review of the pipelines near the Indian Point Energy Center that was requested by PHMSA. Dr. Mike Kass has extensive background in materials compatibility and is also assisting with pipeline projects for the DOE. Priscilla Henson supervises the technical writers and editors at ORNL. Priscilla earned a BA and MA in English from the University of Tennessee and has 16 years of experience supporting scientific and technical publications at ORNL. As the scope of technical details associated with the special permits is unknown until the reviews move forward, it is difficult to assemble a comprehensive list of the expertise needed to support this work. The breadth of knowledge and experience offered by the staff at ORNL allows additional ORNL staff availability as necessary to support this review.

PHMSA CONTRACTING OFFICER

Dwayne Cross is the Contracting Officer for all PHMSA work performed by ORNL under the DOE Proposal 2117-Z295-19.

Dwayne Cross, PHMSA Contracting Officer
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PHMSA AGREEMENT OFFICER'S REPRESENTATIVE

Kay McIver is the Agreement Officer's Representative (AOR) for all ORNL work performed for PHMSA under the DOE Proposal 2117-Z295-19.

PRINCIPAL PHMSA PROJECT POINT OF CONTACT FOR TTA

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PRINCIPAL ORNL PROJECT TEAM POINTS OF CONTACT

ORNL PM and Project Lead: Mr. C. Scott Sluder, Office: 865-341-1235, Mobile: 865-414-7933, Email: sluders@ornl.gov

APPENDIX B. LIST OF SPECIAL PERMITS REVIEWED

Permit	Operator
2019-0150	Natural Gas Pipeline Company of America
2017-0163	Colorado Interstate Gas Company
2016-0159	Southern Natural Gas Company
2016-0158	Tennessee Gas Pipeline Company
2021-0118	Florida Gas Transmission
2020-0001	Florida Gas Transmission
2008-0331	Columbia Gas Transmission Company
2019-0202	Columbia Gas Transmission Company
2019-0201	Columbia Gulf Transmission
2020-0044	Florida Gas Transmission Company LLC
2016-0007	El Paso Natural Gas Company
2016-0004	Tennessee Gas Pipeline Company
2016-0006	Southern Natural Gas Company
2006-24058	Portland Natural Gas Transmission System
2006-26529	ConocoPhillips Alaska Pipelines (ConocoPhillips Natural Gas Corp)
2006-26533	Gulf South Pipeline Company
2006-25802	Enable Gas Transmission (formerly Centerpoint Natural Gas Transmission)
2006-26617	TC Keystone Oil Pipeline Operations
2005-20323	Northern Natural Gas
2008-0345	Columbia Gas Transmission
2008-0159	Texas Gas Transmission LLC (TXTG-KY)
2006-26618	Tennessee Gas Pipeline
2006-26528	Dominion Transmission Inc. (Dominion Energy)
2006-25735	Sabine Pass LNG
2010-0121	Dominion Pipeline (Dominion Energy)
RSPA-04-19914	Enstar Natural Gas Company
RSPA-04-18757	Columbia Gas Transmission (Columbia)
RSPA-04-18817	Tractebel Power, Inc.
05-21747	Southern LNG
05-21314	BOC Gases
2018-0099	Gulf South Pipeline Company LP
2017-0091	Hilcorp Alaska LLC
2018-0042	Golden Pass LNG Terminal LLC
2019-0015	Gulf South Pipeline Company LP
2010-0063	Anchor Point Energy LLC
2006-26532	Chesapeake Appalachia LLC

Permit	Operator
2017-0090	National Fuel Gas Supply Corporation
2018-0105	Gulfstream Management & Operating Services LLC
2003-15122	Texas Eastern Transmission LP
2008-0257	Texas Eastern Transmission LP
2020-0040	Gulf South Pipeline Company LP
2019-0207	Gulf South Pipeline Company LP
2006-25803	Kinder-Morgan Louisiana Pipeline LLC
2017-0157	Alaska Gas Development Corporation
2008-0213	Empire Pipeline Company LP
2019-0174	Gulf South Pipeline Company LP
2008-0141	Northern Natural Gas Company
2007-29078	Kern River Gas Transmission Company
2009-0319	Kern River Gas Transmission Company
2017-0158	Empire Pipeline, Inc.
2016-0149	Donlin Gold Limited Liability Corporation
2017-0155	Hawaiian Electric Power Company, Inc.
2016-0009	Nexus Gas Transmission
2016-0072	Magellan Midstream Partners
2016-0087	City of Bangor, Maine
2009-0100	Paiute Pipeline Company
2007-27122	Texas Eastern Transmission LP
2008-0077	Florida Gas Transmission
2008-0327	Trunkline LNG
2008-0188	Texas Eastern Transmission LP
2007-27647	Great Lakes Gas Transmission
2008-0140	KB Cascade Pipeline
2006-26611	Texas Gas Transmission LLC
2007-0039	Gulf South Pipeline Company LP
2008-0139	Gulf Clean Energy Project
2008-0143	Southern LNG
2007-27842	Midcontinent Express Pipeline LLC
2006-23998	Rockies Express Pipeline LLC
2008-0068	Gulf South Pipeline Company LLC
2008-0067	Texas Gas Transmission LLC
2007-28994	Gulf South Pipeline company LP
2007-27607	Southeast Supply Header LLC
2007-28458	Dominion Transmission Inc
2004-19469	Texas Eastern Transmission
2006-25026	Key West Pipeline Company
2007-27121	Transwestern Pipeline Company

Permit	Operator
2006-25734	Freeport LNG Development LP
2005-23448	Maritimes and Northeast Pipeline LLC
2003-15733	Portland Natural Gas Transmission
2001-10867	Williams Gas Pipeline West
2021-0042	National Fuel and Gas
2020-0003	Buckeye Partners (Columbia Gulf Transmission)
2017-0047	Alaska Gasline Development Corporation
2017-0046	Alaska Gasline Development Corporation
2017-0045	Alaska Gasline Development Corporation
2017-0044	Alaska Gasline Development Corporation
2013-0181	Fairbanks Natural Gas - Alaska
2009-0390	Colonial Pipeline Company
2008-0158	Texas Gas Transmission Company
2008-0066	Columbia Gulf Transmission
2006-23387	Alliance Pipeline LP
2006-23448	Maritimes & Northeast Pipeline LLC
04-19091	Tuscarora Gas Transmission Company
04-18858	Duke Energy Gas Transmission Company
2009-0043	Plains Pipeline LP
2009-0286	MoGas Pipeline LLC
2009-0251	Denbury Onshore LLC
2008-0156	Gas Transmission Northwest Corporation
2009-0054	Enstar Natural Gas Company
2008-0332	Columbia Gas Transmission Company
2009-0407	Union Oil of California (Chevron)
2009-0053	TransCanada
2009-0266	Country Mark Cooperative LLC
2006-26531	Williams Gas Pipeline
2009-0079	Williams Gas Pipeline
2009-0055	TransCanada
2009-0056	TransCanada
2007-27120	Exxonmobil Pipeline Company
2007-29033	Exxonmobil Pipeline Company
2009-0161	TransCanada
2010-0192	TransCanada
2010-0148	TransCanada
2003-15733	TransCanada

Permit	Operator
2010-0261	Buckeye Partners LP
2010-0262	Wyoming Interstate Company
2011-0056	ExxonMobil Pipeline Company
2013-0146	North Slope Borough, Alaska
2016-0039	Energy XXL LLC
2016-0080	North Carolina Utilities Commission for Duke Energy Progress LLC
2016-0073	TICO/New Fortress Energy Management LLC
2018-0029	Harvest Alaska LLC A Hilcorp Corporation
2022-0084	Columbia Gulf Transmission
2022-0167	East Tennessee Natural Gas
2020-0007	Southern Natural Gas Company LLC
2020-0008	El Paso Natural Gas Company LLC
2019-0152	Tennessee Gas Pipeline Company LLC
2017-0161	Tennessee Gas Pipeline Company LLC
2021-0019	Tennessee Gas Pipeline Company LLC
2020-0005	Colorado Interstate Gas Company LLC
2016-0008	Colorado Interstate Gas Company LLC
2019-0201	Columbia Gulf Gas Transmission

APPENDIX C. ENFORCEMENT ACTIONS FOR SPECIAL PERMITS BY REGION

Enforcement Action	Description
Notice of Proposed Safety Order	Issued to notify an operator that a particular pipeline facility has a condition or conditions that pose a risk to public safety, property, or the environment, but that do not constitute a need for immediate corrective action.
Warning Letter	Issued to notify an operator of alleged violations and directing it to correct them or be subject to further enforcement action.
Notice of Amendment	OPS inspections and oversight routinely identifies shortcomings in operator procedures and plans. A notice of amendment directs operators to amend their procedures or plans to address these issues.
Notice of Probable Violation	Notices of probable violation are used as an enforcement tool. When inspections or other activities identify a probable violation of regulations, an NOPV can be issued. It alleges specific violations and proposes corrective action and can impose civil penalties.
Corrective Action Order	Corrective action orders are issued when OPS determines that a particular pipeline represents a serious hazard to life, property, or the environment. This tool is typically used in urgent situations, such as in response to an accident, spill, or other immediate concern. OPS's actions can include fines.

Eastern Region Enforcement Actions

In OPS's Eastern Operations Division, three enforcement cases were issued from 2001 to 2022 pertaining to special permit pipeline segments. In all cases, these enforcement actions involved the issuance of a warning letter to the operator.

A warning letter was issued to the Tennessee Gas Pipeline Company (case #1-2010-1007W) in 2010. The warning letter was issued because an annual report required by condition 15 of a special permit was submitted 6 days later than the deadline. Another requirement (condition 7) of the special permit required the operator to submit direct current voltage gradient, close interval inspection, and stress corrosion cracking direct assessment test results to OPS. Although the operator did submit the required results, they were submitted 165 days late.

Portland Natural Gas Transmission System was also issued a warning letter in 2011 (case #1-2011-014W). In this case, inspection of the operator's documentation was conducted to assess compliance with special permit conditions. Condition 5 of the special permit required the operator to conduct weekly aerial patrols and quarterly ground road crossing patrols over the entire 143.8 mi of the pipeline. The operator's records showed that the required aerial patrols had not been regularly conducted as required and that ground road crossing patrols had been conducted annually instead of quarterly. Furthermore, ground patrols in class 3 locations should have included leak surveys, but records indicated that leak surveys were not performed.

Texas Eastern Transmission LP was issued a warning letter in 2014 (case #1-2014-1006W). Three items were inspected and found to be in probable violation of regulations. Condition 3 of the special permit required the operator to perform a close interval survey and remediate any areas of inadequate cathodic protection within 1 year, or, if factors beyond the operator's control caused a delay, to submit a letter to OPS justifying the delay and providing an anticipated completion date. The operator failed to meet the 1 year deadline and failed to provide a letter justifying the delay. Condition 27 of the special permit requires a senior executive officer of the operator to certify in writing that operator has implemented all conditions required in the special permit, that the pipeline special permit inspection areas and segments meet the conditions described in the special permit, and that the written O&M manual has been updated to include all requirements of the special permit. The operator did not submit this certification letter within 1 year as required by condition 27. Finally, the operator failed to provide 14 days advance notice to OPS of field activities in the special permit inspection areas as required by condition 13 of the special permit on two occasions when excavations were conducted.

Southern Region Enforcement Actions

In OPS's Southern Operations Division, five enforcement cases were issued from 2001 to 2022 pertaining to special permit pipeline segments. Warning letters were issued in two cases; one case involved issuance of a notice of amendment, and two cases involved issuance of a notice of probable violation with a proposed compliance order additionally issued in one of these cases.

In 2007, ExxonMobil Pipeline Company was issued a warning letter (case #4-2007-5029W). The warning letter was issued for two probable violations. The first violation involved the operator documenting a decision not to repair an anomaly on a pipeline segment that was required to be addressed within 180 days without notifying OPS or obtaining relief through the special permit process. Whether or not the pipeline segment could affect a high-consequence area was a contributing factor to the decision and the probable violation. The second issue identified was that integrity assessment data reviewed by a OPS inspection team indicated that anomalies were present that met immediate repair criteria. The operator remediated these anomalies within a short amount of time but classified them as *confirmatory digs* rather than *immediate conditions*. This was a failure to accurately track and report anomalies that meet the immediate repair criteria.

In 2010, Gulf South Pipeline Company LP was issued a notice of amendment (case #2-2010-1011M). The notice documented 11 areas in which the operator's O&M procedural manual was inadequate. These areas included inspection of pressure regulating stations, specifications of external corrosion control coatings, cathodic protection voltage interpretation, external corrosion control monitoring, identification of interference currents, inspection for internal corrosion, record keeping, gas detection and alarm system testing, and periodic review of procedures. Gulf South's operator qualification program was also found inadequate because it did not require the necessary notifications to OPS when significant changes to the qualification plan were made. Finally, the notice identified five areas where Gulf South's integrity management program was inadequate. These areas included assessment methods for pipeline integrity, threat identification, inconsistent language in integrity management program and assessment plans, integrity management program requirements inconsistent with regulatory requirement, and lack of an in-house anomaly reclassification performance measure process.

In 2011, Southeast Supply Header LLC was issued a notice of probable violation (case #2-2011-1007). The notice detailed three violations; the first of these violations was that the operator failed to control compressor outlet temperature at multiple

compressor stations to less than 120°F as required by condition 13 of the special permit, potentially damaging the pipeline coating. The operator also failed to provide results of direct current voltage gradient or other surveys needed to demonstrate the integrity of the coating. The second violation was that the operator failed to install line-of-sight pipeline markers in the special permit segment as required by condition 36 of the special permit. Finally, the operator failed to adequately remediate an anomaly and out-of-roundness conditions identified during a baseline inline inspection run. Although these anomalies were eventually repaired, they were allowed to remain in the pipeline for an extended period of time. Southeast Supply Header was assessed a civil penalty of $26,800 for these violations.

Southeast Supply Header LLC was issued a notice of probable violation and proposed compliance order in 2011 (case #2-2011-1008). This action was taken as a result of nine items of noncompliance. The supplier identified a pinhole leak from a pipeline girth weld but failed to immediately inform OPS of the discovery. The cause was initially described as under investigation, requiring a subsequent report to additionally be sent to OPS. The subsequent report was never submitted. The third violation was that blowdown piping at five compressor stations was designed and installed in a way that failed to prevent blowdown gas from creating a hazardous situation. During construction of line 100, Southeast Supply Header failed to identify two girth weld cracks that were present in construction radiographs, in violation of its nondestructive testing procedures. In a separate violation, the construction radiography was performed using a different procedure than was specified in Southeast Supply Header's approved written nondestructive testing procedures. Southeast Supply Header failed to adequately inspect the girth welds of line 100 to ensure that they were compliant with standards. The operator also failed to adequately protect the pipeline during construction, leading to a buckle in the pipeline that was subsequently discovered and remediated. The operator also failed to adequately document a compressor station pressure relief device and failed to adequately inspect and partially operate three mainline automatic shutoff valves during a 2009 inspection. Southeast Supply Header was assessed a total civil penalty of $174,500 for these violations.

Florida Power and Light Company was issued a warning letter in 2020 (case #2-2020-6002W). The operator failed to inspect the integrity of a breakout tank bottom as required. Florida Power and Light also failed to retain records of their analysis of whether their pipeline system could affect a high-consequence area and records to support any additional measures taken to mitigate the consequences of a pipeline

failure in a high-consequence area. The operator also failed to retain records to demonstrate that adequate internal inspection for corrosion had been conducted.

Central Region Enforcement Actions

In OPS's Central Operations Division, seven enforcement cases were issued from 2001 to 2022 pertaining to special permit pipeline segments. A warning letter was issued in one case and a notice of amendment in another case. The remaining five cases involved a notice of probable violation and in some of these cases, a proposed compliance order was also issued.

In 2012, TC Oil Pipeline Operations Inc. was issued a warning letter (case #3-2012-5001W). The operator had not placed line-of-sight markers at all roadway crossings and needed to install additional markers in some other areas. Additionally, a grouping of trees along one section of pipeline prevented adequate inspection of the right-of-way during aerial patrols, and no other patrol methods have been used in the area. Finally, the operator failed to demonstrate that adequate field testing for AC interference currents had been conducted and failed to identify two overhead electrical lines that could affect the integrity of the cathodic protection system for the pipeline, as required by condition 37 of the special permit.

In 2012, Rockies Express Pipeline LLC was issued a notice of probable violation (case #3-2012-1005). In this case, the Rocky Mountain Express pipeline was found to have inadequate depth of cover in 27 locations in violation of special permit requirements. A civil penalty of $61,800 was imposed as a consequence of this infraction.

Rockies Express Pipeline was issued a separate notice of probable violation in 2012 (case #3-2012-1003). In this case, OPS identified 13 violations that resulted from incorrect construction of the pipeline. The areas of violation included failure to follow correct welding procedures, failure to inspect the pipe coating prior to installation, failures to correctly install the pipe in a ditch, and failure to adequately inspect and remediate welds, pipeline coatings, and other aspects of the installation. These failures resulted in inadequate welds, damage to the pipeline coating, dents, and excessive strain on the pipeline. In particular, 859 out of 7,229 radiographic weld records were found to be unacceptable. When the operator responded to a radiographic review requested by OPS, an additional 64 welds were identified as inadequate and required repair after the pipeline was placed in service. Additionally, the operator designed the pipeline using a design factor of 0.8 in a class 2 area; the special permit allows a design factor of 0.8 only in class 1 areas. Rockies Express Pipeline was assessed a civil penalty of $347,800 for these violations.

A third enforcement action, a notice of probable violation (case #3-2013-1002), against Rockies Express Pipeline was taken in 2013. In this instance, two compressor stations were found to have emergency shutoff set points of 105% of the MAOP, in excess of the 103% of MAOP specified in special permit condition 15. SCADA procedures were found inadequate under condition 24 because they failed to adequately define SCADA set points for operating within acceptable design limits when in local control mode. Finally, the operator failed to operate the pipeline in a way that prevented ingress of contaminants in compliance with condition 28. The SCADA system recorded 870 alarms for gas quality, but no mitigation measures were taken. SCADA procedures required in condition 24 were also inadequate with regard to gas quality control because they failed to verify the accuracy of SCADA set point during or after calibration of equipment necessary to control gas quality. Rockies Express Pipeline was assessed a civil penalty of $67,400 for these violations.

A notice of probable violation was issued to Texas Eastern Transmission LP in 2013 (case #320131006). Three non-compliances were noted in this case. The first was that the operator failed to add lines 10 and 15 to their integrity management plans as covered segments, as required in special permit condition 2. The operator also failed to remediate areas where close interval inspection had revealed coating issues on these two pipelines within the prescribed time period under special permit condition 3. Finally, the operator identified dents with metal loss in the pipelines that required immediate reduction of operating pressure and repair but failed to do so until OPS's regional director demanded they do so, 4 days after discovery. The operator was assessed a civil penalty of $96,200 for these infractions.

A second action was taken against TC Oil Pipeline Operations Inc. in 2020 (case #3-2020-5003). In this case, the action was a notice of probable violation and proposed compliance order. The action was taken as a result of 20 instances of missing line-of-sight markers, in violation of special permit condition 40. The operator was assessed a civil penalty of $170,300 for this infraction.

Magellan Pipeline Company LP was issued a notice of amendment in 2020 (case #3-2020-5013M). The notice was issued based on four areas in which the operator's procedural manual was inadequate. Two of these areas related to gathering data to report certain accidents to OPS immediately. The third area was a shortcoming in the static tank check procedure, and the fourth area was insufficient detail in the discovery of condition procedure. The operator addressed these shortcomings and provided an updated procedure manual to OPS in less than 30 days.

Southwest Region Enforcement Actions

In OPS's Southwest Operations Division, six enforcement cases were issued from 2001 to 2022 pertaining to special permit pipeline segments. A warning letter was issued in one case. A notice of amendment was issued in another case. The remaining four cases involved a notice of probable violation and in two of these cases, a proposed compliance order was also issued.

In the first case, Enable Gas Transmission LLC was issued a notice of probable violation and proposed compliance order (case #4-2014-1004). Two issues resulted in this action. The first issue was that Enable failed to meet its obligations under special permit condition 25 by not conducting inspections to ensure that two mainline shutoff valves could be shut off by the SCADA system. The second issue was that Enable failed to monitor the content and volume of general activity being directed to control room operators within the prescribed intervals to ensure that operators have sufficient time to respond to alarm conditions.

The second case involved TC Oil Pipeline Operations Inc. (case #4-2016-5013M). This case resulted in the issuance of a notice of amendment. Ten issues were identified with the operator's procedure manuals. The manuals did not adequately describe requirements for documenting pressure restrictions. A section referencing API requirements for tank inspection contained an inaccurate reference. The procedures also failed to document the frequency of testing for firefighting equipment. Two references to API standards failed to list the edition of the standards being referenced. A requirement to notify OPS within 30 days of an accident was not included in the manuals.

Enable was issued another notice of probable violation and proposed compliance order in 2016 (case #4-2016-1015). In this case, the operator failed to take additional measures beyond those already required in CFR Part 192 to prevent a pipeline failure in a high consequence area for threats identified during risk analysis. Enable also failed to report a safety-related condition (an area of the pipeline with 84% metal loss) that could lead to an imminent hazard and caused a 20% reduction in operating pressure. Finally, Enable did not complete a required casing reassessment on schedule and failed to request a waiver from OPS for the delayed reassessment 180 days prior to the due date. No civil penalty was sought in this case.

CCPS Transportation LLC was issued a notice of probable violation and proposed compliance order in 2017 (case #4-2017-5037). In this case, CCPS did not follow its own specifications for enhanced pipe manufacturing that were developed in

response to two previous pipeline ruptures. CCPS also failed to comply with the final order requiring that the company submit engineering justification for the waivers to specification that it used in construction. As a result of these violations, CCPS was assessed a civil penalty of $50,100.

Gulf Crossing Pipeline Company was issued a warning letter in 2018 (case #4-2018-1017W). This action was taken because the operator failed to include special permit conditions 3, 7–14, 16, 18, and 21–47 in their written O&M procedures manual.

Enable was issued another notice of probable violation in 2020 (case #4-2020-1004). Enable failed to inspect each pipeline for evidence of atmospheric corrosion within the prescribed time period and failed to adequately inspect segments in spans over water for atmospheric corrosion. The operator also failed to adequately maintain its right-of-way to facilitate inspections by allowing excessive vegetation growth. Furthermore, two individuals who performed corrosion monitoring were not qualified to carry out these inspections. Another violation was that Enable failed to inspect and test its pressure relieving devices and transmission line valves during the prescribed period. Finally, Enable failed to implement two measures it had identified to mitigate the consequences of a pipeline failure in high consequence areas. Enable was assessed a civil penalty of $147,100 in this case.

APPENDIX D. CODE SECTIONS OFTEN INVOLVED IN SPECIAL PERMIT REQUESTS

49 CFR § 190.341 Special permits.

(a) ***What is a special permit?*** A special permit is an order by which PHMSA waives compliance with one or more of the Federal pipeline safety regulations under the standards set forth in 49 U.S.C. 60118(c) and subject to conditions set forth in the order. A special permit is issued to a pipeline operator (or prospective operator) for specified facilities that are or, absent waiver, would be subject to the regulation.

(b) ***How do I apply for a special permit?*** Applications for special permits must be submitted at least 120 days before the requested effective date using any of the following methods:

(1) Direct fax to PHMSA at: 202-366-4566; or

(2) Mail, express mail, or overnight courier to the Associate Administrator for Pipeline Safety, Pipeline and Hazardous Materials Safety Administration, 1200 New Jersey Avenue, SE., East Building, Washington, DC 20590.

(c) ***What information must be contained in the application?*** Applications must contain the following information:

(1) The name, mailing address, and telephone number of the applicant and whether the applicant is an operator;

(2) A detailed description of the pipeline facilities for which the special permit is sought, including:

(i) The beginning and ending points of the pipeline mileage to be covered and the Counties and States in which it is located;

(ii) Whether the pipeline is interstate or intrastate and a general description of the right-of-way including proximity of the affected segments to populated areas and unusually sensitive areas;

(iii) Relevant pipeline design and construction information including the year of installation, the material, grade, diameter, wall thickness, and coating type; and

(iv) Relevant operating information including operating pressure, leak history, and most recent testing or assessment results;

(3) A list of the specific regulation(s) from which the applicant seeks relief;

(4) An explanation of the unique circumstances that the applicant believes make the applicability of that regulation or standard (or portion thereof) unnecessary or inappropriate for its facility;

(5) A description of any measures or activities the applicant proposes to undertake as an alternative to compliance with the relevant regulation, including an explanation of how such measures will mitigate any safety or environmental risks;

(6) A description of any positive or negative impacts on affected stakeholders and a statement indicating how operating the pipeline pursuant to a special permit would be in the public interest;

(7) A certification that operation of the applicant's pipeline under the requested special permit would not be inconsistent with pipeline safety;

(8) Any other information PHMSA may need to process the application including environmental analysis where necessary.

(e) ***How does PHMSA handle special permit renewals?***

(1) The grantee of the special permit must apply for a renewal of the permit 180 days prior to the permit expiration.

(2) If, at least 180 days before an existing special permit expires the holder files an application for renewal that is complete and conforms to the requirements of this section, the special permit will not expire until final administrative action on the application for renewal has been taken:

(i) Direct fax to PHMSA at: 202-366-4566; or

(ii) Express mail, or overnight courier to the Associate Administrator for Pipeline Safety, Pipeline and Hazardous Materials Safety Administration, 1200 New Jersey Avenue SE., Washington, DC 20590.

(f) ***What information must be included in the renewal application?***

(1) The renewal application must include a copy of the original special permit, the docket number on the special permit, and the following information as applicable:

(i) A summary report in accordance with the requirements of the original special permit including verification that the grantee's operations and maintenance plan (O&M Plan) is consistent with the conditions of the special permit;

(ii) Name, mailing address and telephone number of the special permit grantee;

(iii) Location of special permit - areas on the pipeline where the special permit is applicable including: Diameter, mile posts, county, and state;

(iv) Applicable usage of the special permit - original and future; and

(v) Data for the special permit segment and area identified in the special permit as needing additional inspections to include, as applicable:

(A) Pipe attributes: Pipe diameter, wall thickness, grade, seam type; and pipe coating including girth weld coating;

(B) Operating Pressure: Maximum allowable operating pressure (MAOP); class location (including boundaries on aerial photography);

(C) High Consequence Areas (HCAs): HCA boundaries on aerial photography;

(D) Material Properties: Pipeline material documentation for all pipe, fittings, flanges, and any other facilities included in the special permit. Material documentation must include: Yield strength, tensile strength, chemical composition, wall thickness, and seam type;

(E) Test Pressure: Hydrostatic test pressure and date including pressure and temperature charts and logs and any known test failures or leaks;

(F) In-line inspection (ILI): Summary of ILI survey results from all ILI tools used on the special permit segments during the previous five years or latest ILI survey result;

(G) Integrity Data and Integration: The following information, as applicable, for the past five (5) years: Hydrostatic test pressure including any known test failures or leaks; casings(any shorts); any in-service ruptures or leaks; close interval survey (CIS) surveys; depth of cover surveys; rectifier readings; test point survey readings; alternating current/direct current (AC/DC) interference surveys; pipe coating surveys; pipe coating and anomaly evaluations from pipe excavations; stress corrosion cracking (SCC), selective seam weld corrosion (SSWC) and hard spot excavations and findings; and pipe exposures from encroachments;

(H) In-service: Any in-service ruptures or leaks including repair type and failure investigation findings; and

(I) Aerial Photography: Special permit segment and special permit inspection area, if applicable.

(2) PHMSA may request additional operational, integrity or environmental assessment information prior to granting any request for special permit renewal.

(3) The existing special permit will remain in effect until PHMSA acts on the application for renewal by granting or denying the request.

(g) ***Can a special permit be requested on an emergency basis?*** Yes. PHMSA may grant an application for an emergency special permit without notice and comment or hearing if the Associate Administrator determines that such action is in the public interest, is not inconsistent with pipeline safety, and is necessary to address an actual or impending emergency involving pipeline transportation. For purposes of this section, an emergency event may be local, regional, or national in scope and includes significant fuel supply disruptions and natural or manmade disasters such as hurricanes, floods, earthquakes, terrorist acts, biological outbreaks, releases of dangerous radiological, chemical, or biological materials, war-related activities, or other similar events. PHMSA will determine on a case-by-case basis what duration is necessary to address the emergency. However, as required by statute, no emergency special permit may be issued for a period of more than 60 days. Each emergency special permit will automatically expire on the date specified in the permit. Emergency special permits may be renewed upon application to PHMSA only after notice and opportunity for a hearing on the renewal.

(h) ***How do I apply for an emergency special permit?*** Applications for emergency special permits may be submitted to PHMSA using any of the following methods:

(1) Direct fax to the Crisis Management Center at: 202-366-3768;

(2) Direct e-mail to PHMSA at: *phmsa.pipeline-emergencyspecpermit@dot.gov*; or

(3) Express mail/overnight courier to the Associate Administrator for Pipeline Safety, Pipeline and Hazardous Materials Safety Administration, 1200 New Jersey Avenue, SE., East Building, Washington, DC 20590.

(i) ***What must be contained in an application for an emergency special permit?*** In addition to the information required under paragraph (c) of this section, applications for emergency special permits must include:

(1) An explanation of the actual or impending emergency and how the applicant is affected;

(2) A citation of the regulations that are implicated and the specific reasons the permit is necessary to address the emergency (e.g., lack of accessibility, damaged equipment, insufficient manpower);

(3) A statement indicating how operating the pipeline pursuant to an emergency special permit is in the public interest (e.g., continuity of service, service restoration);

(4) A description of any proposed alternatives to compliance with the regulation (e.g., additional inspections and tests, shortened reassessment intervals); and

(5) A description of any measures to be taken after the emergency situation or permit expires - whichever comes first - to confirm long-term operational reliability of the pipeline facility.

Note to paragraph (g):

If PHMSA determines that handling of the application on an emergency basis is not warranted, PHMSA will notify the applicant and process the application under normal special permit procedures of this section.

(j) ***In what circumstances will PHMSA revoke, suspend, or modify a special permit?***

(1) PHMSA may revoke, suspend, or modify a special permit on a finding that:

(i) Intervening changes in Federal law mandate revocation, suspension, or modification of the special permit;

(ii) Based on a material change in conditions or circumstances, continued adherence to the terms of the special permit would be inconsistent with safety;

(iii) The application contained inaccurate or incomplete information, and the special permit would not have been granted had the application been accurate and complete;

(iv) The application contained deliberately inaccurate or incomplete information; or

(v) The holder has failed to comply with any material term or condition of the special permit.

(2) Except as provided in paragraph (h)(3) of this section, before a special permit is modified, suspended or revoked, PHMSA will notify the holder in writing of the proposed action and the reasons for it, and provide an opportunity to show cause why the proposed action should not be taken.

(i) The holder may file a written response that shows cause why the proposed action should not be taken within 30 days of receipt of notice of the proposed action.

(ii) After considering the holder's written response, or after 30 days have passed without response since receipt of the notice, PHMSA will notify the holder in writing of the final decision with a brief statement of reasons.

(3) If necessary to avoid a risk of significant harm to persons, property, or the environment, PHMSA may in the notification declare the proposed action immediately effective.

(4) Unless otherwise specified, the terms and conditions of a corrective action order, compliance order, or other order applicable to a pipeline facility covered by a special permit will take precedence over the terms of the special permit.

(5) A special permit holder may seek reconsideration of a decision under paragraph (h) of this section as provided in paragraph (i) of this section.

(k) ***Can a denial of a request for a special permit or a revocation of an existing special permit be appealed?*** Reconsideration of the denial of an application for a special permit or a revocation of an existing special permit may be sought by petition to the Associate Administrator. Petitions for reconsideration must be received by PHMSA within 20 calendar days of the notice of the grant or denial and must contain a brief statement of the issue and an explanation of why the petitioner believes that the decision being appealed is not in the public interest. The Associate Administrator may grant or deny, in whole or in part, any petition for reconsideration without further proceedings. The Associate Administrator's decision is the final administrative action.

(l) ***Are documents related to an application for a special permit available for public inspection?*** Documents related to an application, including the application itself, are available for public inspection on regulations.gov or the Docket Operations Facility to the extent such documents do not include information exempt from public disclosure under 5 U.S.C. 552(b). Applicants may request confidential treatment under part 7 of this title.

(m) ***Am I subject to enforcement action for non-compliance with the terms and conditions of a special permit?*** Yes. PHMSA inspects for compliance with the terms and conditions of special permits and if a probable violation is identified, PHMSA will initiate one or more of the enforcement actions under subpart B of this part.

49 CFR § 192.111 Design factor (*F*) for steel pipe.

(a) Each pressure relief station or pressure limiting station or group of those stations installed to protect a pipeline must have enough capacity, and must be set to operate, to insure the following:

(1) In a low pressure distribution system, the pressure may not cause the unsafe operation of any connected and properly adjusted gas utilization equipment.

(2) In pipelines other than a low pressure distribution system:

(i) If the maximum allowable operating pressure is 60 p.s.i. (414 kPa) gage or more, the pressure may not exceed the maximum allowable operating pressure plus 10 percent, or the pressure that produces a hoop stress of 75 percent of SMYS, whichever is lower;

(ii) If the maximum allowable operating pressure is 12 p.s.i. (83 kPa) gage or more, but less than 60 p.s.i. (414 kPa) gage, the pressure may not exceed the maximum allowable operating pressure plus 6 p.s.i. (41 kPa) gage; or

(iii) If the maximum allowable operating pressure is less than 12 p.s.i. (83 kPa) gage, the pressure may not exceed the maximum allowable operating pressure plus 50 percent.

(b) When more than one pressure regulating or compressor station feeds into a pipeline, relief valves or other protective devices must be installed at each station to ensure that the complete failure of the largest capacity regulator or compressor, or any single run of lesser capacity regulators or compressors in that station, will not impose pressures on any part of the pipeline or distribution system in excess of those for which it was designed, or against which it was protected, whichever is lower.

(c) Relief valves or other pressure limiting devices must be installed at or near each regulator station in a low-pressure distribution system, with a capacity to limit the maximum pressure in the main to a pressure that will not exceed the safe operating pressure for any connected and properly adjusted gas utilization equipment.

49 CFR § 192.201 Required capacity of pressure relieving and limiting stations.

(a) Except as otherwise provided in paragraphs (b), (c), and (d) of this section, the design factor to be used in the design formula in § 192.105 is determined in accordance with the following table:

Class location	Design factor (*F*)
1	0.72
2	0.60
3	0.50
4	0.40

(b) A design factor of 0.60 or less must be used in the design formula in § 192.105 for steel pipe in Class 1 locations that:

(1) Crosses the right-of-way of an unimproved public road, without a casing;

(2) Crosses without a casing, or makes a parallel encroachment on, the right-of-way of either a hard surfaced road, a highway, a public street, or a railroad;

(3) Is supported by a vehicular, pedestrian, railroad, or pipeline bridge; or

(4) Is used in a fabricated assembly, (including separators, mainline valve assemblies, cross-connections, and river crossing headers) or is used within five pipe diameters in any direction from the last fitting of a fabricated assembly, other than a transition piece or an elbow used in place of a pipe bend which is not associated with a fabricated assembly.

(c) For Class 2 locations, a design factor of 0.50, or less, must be used in the design formula in § 192.105 for uncased steel pipe that crosses the right-of-way of a hard surfaced road, a highway, a public street, or a railroad.

(d) For Class 1 and Class 2 locations, a design factor of 0.50, or less, must be used in the design formula in § 192.105 for -

(1) Steel pipe in a compressor station, regulating station, or measuring station; and

(2) Steel pipe, including a pipe riser, on a platform located offshore or in inland navigable waters.

49 CFR § 192.505 Strength test requirements for steel pipeline to operate at a hoop stress of 30 percent or more of SMYS.

(a) Except for service lines, each segment of a steel pipeline that is to operate at a hoop stress of 30 percent or more of SMYS must be strength tested in accordance with this section to substantiate the proposed maximum allowable operating pressure. In addition, in a Class 1 or Class 2 location, if there is a building intended for human occupancy within 300 feet (91 meters) of a pipeline, a hydrostatic test must be conducted to a test pressure of at least 125 percent of maximum operating pressure on that segment of the pipeline within 300 feet (91 meters) of such a building, but in no event may the test section be less than 600 feet (183 meters) unless the length of the newly installed or relocated pipe is less than 600 feet (183 meters). However, if the buildings are evacuated while the hoop stress exceeds 50 percent of SMYS, air or inert gas may be used as the test medium.

(b) In a Class 1 or Class 2 location, each compressor station regulator station, and measuring station, must be tested to at least Class 3 location test requirements.

(c) Except as provided in paragraph (d) of this section, the strength test must be conducted by mai ntaining the pressure at or above the test pressure for at least 8 hours.

(d) For fabricated units and short sections of pipe, for which a post installation test is impractical, a preinstallation strength test must be conducted by maintaining the pressure at or above the test pressure for at least 4 hours.

49 CFR § 192.611 Change in class location: Confirmation or revision of maximum allowable operating pressure.

(a) If the hoop stress corresponding to the established maximum allowable operating pressure of a segment of pipeline is not commensurate with the present class location, and the segment is in satisfactory physical condition, the maximum allowable operating pressure of that segment of pipeline must be confirmed or revised according to one of the following requirements:

(1) If the segment involved has been previously tested in place for a period of not less than 8 hours:

(i) The maximum allowable operating pressure is 0.8 times the test pressure in Class 2 locations, 0.667 times the test pressure in Class 3 locations, or 0.555 times the test pressure in Class 4 locations. The corresponding hoop stress may not exceed 72 percent of the SMYS of the pipe in Class 2 locations, 60 percent of SMYS in Class 3 locations, or 50 percent of SMYS in Class 4 locations.

(ii) The alternative maximum allowable operating pressure is 0.8 times the test pressure in Class 2 locations and 0.667 times the test pressure in Class 3 locations. For pipelines operating at alternative maximum allowable pressure per § 192.620, the corresponding hoop stress may not exceed 80 percent of the SMYS of the pipe in Class 2 locations and 67 percent of SMYS in Class 3 locations.

(2) The maximum allowable operating pressure of the segment involved must be reduced so that the corresponding hoop stress is not more than that allowed by this part for new segments of pipelines in the existing class location.

(3) The segment involved must be tested in accordance with the applicable requirements of subpart J of this part, and its maximum allowable operating pressure must then be established according to the following criteria:

(i) The maximum allowable operating pressure after the requalification test is 0.8 times the test pressure for Class 2 locations, 0.667 times the test pressure for Class 3 locations, and 0.555 times the test pressure for Class 4 locations.

(ii) The corresponding hoop stress may not exceed 72 percent of the SMYS of the pipe in Class 2 locations, 60 percent of SMYS in Class 3 locations, or 50 percent of SMYS in Class 4 locations.

(iii) For pipeline operating at an alternative maximum allowable operating pressure per § 192.620, the alternative maximum allowable operating pressure after the requalification test is 0.8 times the test pressure for Class 2 locations and 0.667 times the test pressure for Class 3 locations. The corresponding hoop stress may not exceed 80 percent of the SMYS of the pipe in Class 2 locations and 67 percent of SMYS in Class 3 locations.

(b) The maximum allowable operating pressure confirmed or revised in accordance with this section, may not exceed the maximum allowable operating pressure established before the confirmation or revision.

(c) Confirmation or revision of the maximum allowable operating pressure of a segment of pipeline in accordance with this section does not preclude the application of §§ 192.553 and 192.555.

(d) Confirmation or revision of the maximum allowable operating pressure that is required as a result of a study under § 192.609 must be completed within 24 months of the change in class location. Pressure reduction under paragraph (a) (1) or (2) of this section within the 24-month period does not preclude establishing a maximum allowable operating pressure under paragraph (a)(3) of this section at a later date.

49 CFR § 192.619 Maximum allowable operating pressure: Steel or plastic pipelines.

(a) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure (MAOP) determined under paragraph (c), (d), or (e) of this section, or the lowest of the following:

(1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part. However, for steel pipe in pipelines being converted under § 192.14 or uprated under subpart K of this part, if any variable necessary to determine the design pressure under the design formula (§ 192.105) is unknown, one of the following pressures is to be used as design pressure:

(i) Eighty percent of the first test pressure that produces yield undersection N5 of Appendix N of ASME B31.8 (incorporated by reference, *see* § 192.7), reduced by the appropriate factor in paragraph (a)(2)(ii) of this section; or

(ii) If the pipe is 12¾ inches (324 mm) or less in outside diameter and is not tested to yield under this paragraph, 200 p.s.i. (1379 kPa).

(2) The pressure obtained by dividing the pressure to which the pipeline segment was tested after construction as follows:

(i) For plastic pipe in all locations, the test pressure is divided by a factor of 1.5.

(ii) For steel pipe operated at 100 psi (689 kPa) gage or more, the test pressure is divided by a factor determined in accordance with the Table 1 to paragraph (a)(2)(ii):

Table 1 to Paragraph (a)(2)(ii)

Class location	Installed before (Nov. 12, 1970)	Factors,[1][2] segment -		
		Installed after (Nov. 11, 1970) and before July 1, 2020	Installed on or after July 1, 2020	Converted under § 192.14
1	1.1	1.1	1.25	1.25
2	1.25	1.25	1.25	1.25
3	1.4	1.5	1.5	1.5
4	1.4	1.5	1.5	1.5

[1] For offshore pipeline segments installed, uprated or converted after July 31, 1977, that are not located on an offshore platform, the factor is 1.25. For pipeline segments installed, uprated or converted after July 31, 1977, that are located on an offshore platform or on a platform in inland navigable waters, including a pipe riser, the factor is 1.5.

[2] For a component with a design pressure established in accordance with § 192.153(a) or (b) installed after July 14, 2004, the factor is 1.3.

(3) The highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column. This pressure restriction applies unless the segment was tested according to the requirements in paragraph (a)(2) of this section after the applicable date in the third column or the segment was uprated according to the requirements in subpart K of this part:

Pipeline segment	Pressure date	Test date
(i) Onshore regulated gathering pipeline (Type A or Type B under § 192.9(d)) that first became subject to this part (other than § 192.612) after April 13, 2006	March 15, 2006, or date pipeline becomes subject to this part, whichever is later	5 years preceding applicable date in second column.
(ii) Onshore regulated gathering pipeline (Type C under § 192.9(d)) that first became subject to this part (other than § 192.612) on or after May 16, 2022	May 16, 2023, *or date pipeline becomes subject to this part, whichever is later*	5 years preceding applicable date in second column.
(iii) Onshore transmission pipeline that was a gathering pipeline not subject to this part before March 15, 2006	March 15, 2006, or date pipeline becomes subject to this part, whichever is later	5 years preceding applicable date in second column.
(iv) Offshore gathering pipelines	July 1, 1976	July 1, 1971.
(v) All other pipelines	July 1, 1970	July 1, 1965.

(4) The pressure determined by the operator to be the maximum safe pressure after considering and accounting for records of material properties, including material properties verified in accordance with § 192.607, if applicable, and the history of the pipeline segment, including known corrosion and actual operating pressure.

(b) No person may operate a segment to which paragraph (a)(4) of this section is applicable, unless over-pressure protective devices are installed on the segment in a manner that will prevent the maximum allowable operating pressure from being exceeded, in accordance with § 192.195.

(c) The requirements on pressure restrictions in this section do not apply in the following instances:

(1) An operator may operate a segment of pipeline found to be in satisfactory condition, considering its operating and maintenance history, at the highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column of the table in paragraph (a)(3) of this section. An operator must still comply with § 192.611.

(2) For any Type C gas gathering pipeline under § 192.9 existing on or before May 16, 2022, that was not previously subject to this part and the operator cannot determine the actual operating pressure of the pipeline for the 5 years preceding May 16, 2023, the operator may establish MAOP using other criteria based on a combination of operating conditions, other tests, and design with approval from PHMSA. The operator must notify PHMSA in accordance with § 192.18. The notification must include the following information:

(i) The proposed MAOP of the pipeline;

(ii) Description of pipeline segment for which alternate methods are used to establish MAOP, including diameter, wall thickness, pipe grade, seam type, location, endpoints, other pertinent material properties, and age;

(iii) Pipeline operating data, including operating history and maintenance history;

(iv) Description of methods being used to establish MAOP;

(v) Technical justification for use of the methods chosen to establish MAOP; and

(vi) Evidence of review and acceptance of the justification by a qualified technical subject matter expert.

(d) The operator of a pipeline segment of steel pipeline meeting the conditions prescribed in § 192.620(b) may elect to operate the segment at a maximum allowable operating pressure determined under § 192.620(a).

(e) Notwithstanding the requirements in paragraphs (a) through (d) of this section, operators of onshore steel transmission pipelines that meet the criteria specified in § 192.624(a) must establish and document the maximum allowable operating pressure in accordance with § 192.624.

(f) Operators of onshore steel transmission pipelines must make and retain records necessary to establish and document the MAOP of each pipeline segment in accordance with paragraphs (a) through (e) of this section as follows:

(1) Operators of pipelines in operation as of July 1, 2020 must retain any existing records establishing MAOP for the life of the pipeline;

(2) Operators of pipelines in operation as of July 1, 2020 that do not have records establishing MAOP and are required to reconfirm MAOP in accordance with § 192.624, must retain the records reconfirming MAOP for the life of the pipeline; and

(3) Operators of pipelines placed in operation after July 1, 2020 must make and retain records establishing MAOP for the life of the pipeline.

49 CFR § 192.625 Odorization of gas.

(a) A combustible gas in a distribution line must contain a natural odorant or be odorized so that at a concentration in air of one-fifth of the lower explosive limit, the gas is readily detectable by a person with a normal sense of smell.

(b) After December 31, 1976, a combustible gas in a transmission line in a Class 3 or Class 4 location must comply with the requirements of paragraph (a) of this section unless:

(1) At least 50 percent of the length of the line downstream from that location is in a Class 1 or Class 2 location;

(2) The line transports gas to any of the following facilities which received gas without an odorant from that line before May 5, 1975;

(i) An underground storage field;

(ii) A gas processing plant;

(iii) A gas dehydration plant; or

(iv) An industrial plant using gas in a process where the presence of an odorant:

(A) Makes the end product unfit for the purpose for which it is intended;

(B) Reduces the activity of a catalyst; or

(C) Reduces the percentage completion of a chemical reaction;

(3) In the case of a lateral line which transports gas to a distribution center, at least 50 percent of the length of that line is in a Class 1 or Class 2 location; or

(4) The combustible gas is hydrogen intended for use as a feedstock in a manufacturing process.

(c) In the concentrations in which it is used, the odorant in combustible gases must comply with the following:

(1) The odorant may not be deleterious to persons, materials, or pipe.

(2) The products of combustion from the odorant may not be toxic when breathed nor may they be corrosive or harmful to those materials to which the products of combustion will be exposed.

(d) The odorant may not be soluble in water to an extent greater than 2.5 parts to 100 parts by weight.

(e) Equipment for odorization must introduce the odorant without wide variations in the level of odorant.

(f) To assure the proper concentration of odorant in accordance with this section, each operator must conduct periodic sampling of combustible gases using an instrument capable of determining the percentage of gas in air at which the odor becomes readily detectable. Operators of master meter systems may comply with this requirement by -

(1) Receiving written verification from their gas source that the gas has the proper concentration of odorant; and

(2) Conducting periodic “sniff” tests at the extremities of the system to confirm that the gas contains odorant.